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THESIS

DEVELOPMENT OF A FACULTY RESEARCH AND PUBLICATION DATABASE SYSTEM

by

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The Administrative Sciences (AS) Department of the Naval Postgraduate School Maintains a substantial amount of faculty research and publication data that is used to support its vast and varied informational needs. The data consists of all departmental publications that have been written by Administrative Science faculty members. This database requires constant maintenance to ensure accurate, up-to-date publication information that can be rapidly accessed anytime. This thesis will define, design and implement a database application that the Administrative Sciences Department can use to systematically manage their faculty publication database for automatic retrieval and reporting. The new prototype software is named "Faculty Research and Publication Database System (FPDS)", version 1.0. This thesis provides an in depth outline covering software analysis, design and implementation. The system was written using Dbase IV, version 1.1.

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Development of a Faculty Research and Publication Database System

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ABSTRACT

The Administrative Sciences (AS) Department of the Naval Postgraduate School (NPS) maintains a substantial amount of faculty research and publication data that is used to support its vast and varied informational needs. The data consists of all departmental publications that have been written by Administrative Science faculty members. This database requires constant maintenance to ensure accurate, up-to-date publication information that can be rapidly accessed at anytime. This thesis will define, design and implement a database application that the Administrative Sciences Department can use to systematically manage their faculty publication database for automatic retrieval and reporting. This new prototype software is named "Faculty Research and Publication Database System (FPDS)", version 1.0. This thesis provides an in depth outline covering software requirements analysis, design and implementation. The system was written using Dbase IV, version 1.1.

TABLE OF CONTENTS

I. INTRODUCTION

A. BACKGROUND

The Administrative Sciences (AS) Department of the Naval Postgraduate School (NPS) has a very large faculty research and publication database. An inordinate amount of time was being expended to manage the faculty publication database when it was evident that a software application could be developed to eliminate the burden of manually administering the database. Therefore, the decision was made to develop an application that could effectively manage and access all faculty research publications associated with the AS Department. The need for a computerized Research and Publication Database system has been an ongoing requirement for some time.

The basic requirement for the system is to process all Administrative Sciences faculty members' publications, including conference papers, articles, technical reports, book chapters, books and conference/colloquium presentations. This thesis will include an in depth overview of the entire software application analysis, design and implementation process.

B. FACULTY RESEARCH AND PUBLICATION DATABASE SYSTEM OBJECTIVES

This system was developed to enhance the ability of the Department of Administrative Sciences to manage all applicable departmental faculty members publications. To achieve this objective, detailed descriptions regarding every aspect of a publication or research paper had to be thoroughly analyzed and unique Publication attributes had to be identified. It was critical to ensure that all common fields required to link the relations between objects were exactly identical in name and structure.

FPDS was developed using Ashton-Tates Dbase IV, version 1.1. Personal interviews with FPDS end-users were conducted. Exact user requirements were identified and subsequently used to develop a prototype Faculty Research and Publication Database application that was presented for critique to all expected end-users and system beneficiaries. To meet the exact needs of the end-users, the development of this system required program coding with the Dbase IV programming language.

FPDS is a user-friendly application that provides record entry for multiple fields. The application provides a means to retrieve, edit, delete and select required records. Furthermore, the Faculty Research and Publication database can be queried to generate numerous reports that can used as an effective departmental information and management resource.

This Faculty Research and Publication Database System prototype allows room for further expansion as additional requirements and applications become identified.

C. RESEARCH QUESTIONS

1. What objects need to identified to develop and implement a relational database for a faculty research and publication database application?

2. What processing requirements are needed to support the faculty database application?

3. What user interface mechanisms can be provided to the end-user to efficiently and effectively update, display and control data?

4. What are the operational, administrative and environmental constraints associated with this application?

D. SCOPE AND LIMITATIONS OF THESIS

This thesis will define, design and implement a database in a relational system that the Administrative Sciences Department can use to systematically manage their faculty publication database for automatic retrieval and reporting.

E. METHODOLOGY

This thesis will focus on the design of a logical database, implementirg the methodologies associated with a relational system. To achieve this objective, the FPDS

application will provide a user-friendly application that will:

1. Print, query, and update objects.
2. Allow the end-user to direct and control the processing of the application.
3. Maintain the security and integrity of the database at all times.

This thesis will also focus on the methodologies associated with the Software Life Cycle Development process. Specifically:

1. Define the problem (Definition Phase).
2. Determine data and processing requirements (Requirements and Evaluation Phase).
3. Design the database and associated applications (Design Phase).
4. Install application (Implementation Phase).

To determine the exact requirements for the database application, interviews with the end-users will be conducted throughout the project. Specific interview questions will include:

1. What objects need to be identified in the Faculty Publication database?
2. How are these objects updated, displayed and controlled?
3. What type of reports are required?

F. STRUCTURE OF THESIS

Chapter II will be broken down into two sections; the Definition Phase and Requirements Phase. The goal of the

Definition Phase will be to define the system objective and find out what has to be done to accomplish it. This phase also includes establishing the scope of the application and assessing project feasibility. [Ref 2:p. 23] The Requirements Phase will determine what the new system (FPDS) must do to meet the objectives outlined in the Definition Phase. This includes determining application data and process requirements. This involves specifying object diagrams, object specifications, data flow diagrams, sample data entry forms, reports, and object update, display and control mechanisms (Appendices A through E).

Chapter III will describe both the Evaluation and Design Phases of FPDS. The Evaluation Phase of this chapter will study the alternatives to the system being developed. During the Design Phase of FPDS, the blueprint for FPDS will be determined. The database schema, application subschemas, formats for forms, reports, and menus will be established for the application. This phase is illustrated by relational diagrams, relational definitions, menu hierarchy diagrams, processing logic, and object materialization (Appendices F through I).

Chapter IV reviews the implementation phase of FPDS. Specifically, this means constructing the application in accordance with system design. Transaction processing programs are developed and each component of the application is tested.

Chapter V summarizes the usability of FPDS and addresses areas that warrant further development. Additional requirements may be identified in the future that could promote modifications to FPDS, possibly as a study for another thesis project.

II. DEFINITION/REQUIREMENTS PHASE

A. DEFINITION PHASE

1. Methodology

The first objective of an application development project is to define what the project is meant to do. [Ref. 1:p. 75] This includes forming a team to work on the project and assessing the feasibility of the project (i.e., cost and scheduling). In this instance, FPDS was developed as a comprehensive set of applications used to manage a common database.

2. Scope of Application

The goal of this project was to develop a Faculty Research and Publication Database System prototype that the Administrative Sciences Department could use as an effective database management tool. It was determined that the scope of this project could be successfully accomplished as an individual thesis project. It was further determined that all feasibility concerns could be satisfied. Work on the FPDS application was performed on a 386, 25 MHZ IBM Personal Computer owned by the thesis student. A time span of seven months was deemed feasible with the project beginning in December 1991 and completing by June 1992. System functionality objectives were explicitly defined during two

personal interviews with professors of the Administrative Sciences Department. The first interview was conducted with Professor Shu Liao, Associate Chair for Systems Development. The next interview was held with Professor Liao and the Chairman of the Administrative Sciences Department, Professor David Whipple. Additional interviews were conducted with Professor Stephen Mehay, Associate Chair for Research, and his assistant. During these interviews, the following system was defined for development and implementation:

> A Faculty Research and Publication Database System that is menu driven and accurately reflects all Administrative Sciences Department Faculty Members' professional authorship and research work. The application should specifically demonstrate the capability to generate various reports that effectively illustrate the multiple attributes associated with the Faculty Research and Publication database.

Once the Faculty Research and Publication application was defined, work could now begin on the requirements phase.

B. REQUIREMENTS PHASE

1. Methodology

The objective of a database application is to allow the end user to capture the information required to access the objects that are important to his/her work environment. The goals of the Requirement Phase are to determine what those objects are and to identify what the update, display and control mechanisms are for processing them. These requirements are determined as follows.

First, the developer, with the assistance of the end user, needs to define the objects for the new application (Appendix A). An object is a collection of properties that describe real world entities that the end user employs in his/her work environment. The database will contain instances of objects.

Second, functional components of each application that will be used in the database must be determined. This includes the update, display and control mechanisms (Appendix E). These components provide the means by which the end user keeps the database current. The most effective way to attain this objective is to determine in which manner the objects will be processed and to interview the people who will be using the applications.

2. Application Requirements

Interviews commenced the first week of December 1991 with three users of the system: Professor Shu Liao - Thesis Advisor, Professor Steve Mehay - Associate Chair for Research, and Chan Burns - Research Technician Clerk. These initial interviews lasted about two weeks, emphasizing more on direct contact with the end user (Chan Burns) who would operate and maintain the system. Chan Burns was able to identify in detail system interface application requirements that the developer could incorporate in the application design.

Working with the initial data requirements, a prototype Faculty Research and Publication Database System (FPDS) application with sample input screen and reports was developed and presented to Professor Liao in March 1992. Some changes to the initial requirements were requested by Professor Liao and the prototype was reworked with those changes. This cycle was repeated several times over the next six weeks. Since the time schedule for delivery of the final product was ample, there was enough flexibility in the schedule to support the required changes.

3. Data Requirements

An object has a name that distinguishes it from other objects. The name of the object directly corresponds to the name of the entity it represents. [Ref. 1:p. 90] As outlined in Appendix A, the FACULTY MEMBER object and PUBLICATION object were determined through the interview/prototype process as objects required for the FPDS application. As discussed earlier, an object is a collection of properties and each property represents a characteristic of the corresponding entity. The purpose of these diagrams is to graphically illustrate the objects, their properties and to specify the relationships among objects. Object diagrams depict objects, their properties, and their relationship with other objects.

For example, in Appendix A, the FACULTY MEMBER object includes five associative properties (ID_CODE, lastname,

initial, department and PUBLICATION). Each property represents an important characteristic of a faculty member. The property that is capitalized and enclosed in a box is called an object property. An object property is a characteristic of an entity that is actually another object. The PUBLICATION object contains properties applicable to all the fields affiliated with a faculty member's publication.

Additionally, some properties are allowed to have a single value or some may have multiple values. For instance, in Appendix A, a Faculty Member instance is allowed to have only one value for ID_CODE. However, a Faculty Member can have more than one Publication. This is indicated by the subscript "MV" which means multivalued.

Appendix B introduces the object specifications for the FPDS application. This specification is made up of two parts: object definition and domain definitions. An object definition lists all the properties of an object and specifies the domain from which values from each property can be drawn. Domain definitions specify formats and lengths for the values for each domain as well as its semantic definition.

Each object name in Appendix B, section A, lists all the properties associated with that object. The name of each property is separated from its domain by a semicolon. The key word SUBSET, followed by properties listed in brackets, indicates that a foreign object is germane to that object (a foreign object is the object from which the properties are

being drawn). For example, in Appendix B, PUBLICATION is foreign to FACULTY MEMBER.

In Appendix B, section B (Domain Definitions), the set of values from which an instance of a property can be inferred is described. The domain of an object property is simply a set of object instances. For example, in Appendix B, the domain of the PUBLICATION object properties is the set of all publication instances.

4. Update, Display and Control Mechanisms

In order to effectively identify database application requirements, each application needs to be specified which means delineating all update, display and control mechanisms. In the previous section, actual applications were not defined: only the objects that are to be stored in the database that would process them were actually defined.

For this application, Data Flow Diagrams (Appendix C) were used to determine how an academic department, in this case, the Administrative Sciences Department, creates, edits, deletes and displays objects. After the Data Flow Diagrams in Appendix C were reviewed it was evident that various activities could be physically traced. The faculty member (an external entity) sends a Publication Data Input Form (Appendix D, section B) to the Associate Chair for Research. Each form contains the properties that are applicable to both the FACULTY MEMBER object and PUBLICATION object. After the

Associate Chair for Research has reviewed the Publication Data Input Form he sends it to the technical research clerk. She enters the new faculty publication information into the FPDS database, creating instances of the PUBLICATION object.

Various publication reports (Appendix I, section B) are printed and sent to several external entities. Additionally, at the end of every month, the technical research clerk sends out a list of the publications promulgated for that month. Each function to update, display and control is performed by the technical research clerk. As the Data Flow Diagrams show, the technical research clerk reads the FACULTY MEMBER object and then reads and writes the PUBLICATION object. During the requirements interviews, the developer realized that all FACULTY MEMBER PUBLICATION record maintenance was the responsibility of the technical research clerk. This meant that the FPDS application needed to create, edit and delete instances of FACULTY MEMBER and PUBLICATION objects.

a. Faculty Member Publication Record Update Mechanisms

As outlined in Appendix E, section A, the technical research clerk creates FACULTY MEMBER objects using data from the registrar of the Naval Postgraduate School, who assigns a unique ID code to each faculty member. When the technical research clerk receives publication data via the

Publication Data Input Form, she completes the PUBLICATION, TYPE OF PUB and AREA OF PUB objects.

The application developer decided that one faculty member data input form (Appendix D, section B) was needed as a processing requirement for the data input process to efficiently and effectively operate. The form is used for adding and editing faculty member data and publication data. This data is provided by the faculty member. When the form is used to edit faculty member and publication data, changes can be made to any property of FACULTY MEMBER, PUBLICATION, TYPE OF PUB and AREA OF PUB. The form can also be used to delete a FACULTY MEMBER record.

b. Faculty Member Publication Record Display Mechanisms

The FACULTY MEMBER application requires eight reports (Appendix I). The reports printed are sent to a number of external entities (see Data Flow Diagram Appendix C). The eight reports consist of the following:

a. Publication Report By Faculty Member Lastname and Type of Publication

b. Publication Report By Area and Type of Publication

c. Publication Report By Type and Area of Publication

d. Publication Report By Year of Publication

e. Publication Report By Year of Publication and

Faculty Member

f. Publication Report By Year of Publication and Area of Publication

g. Publication Report By Year of Publication and Type of Publication

h. Publication Report By Year of Publication and Month of Publication

c. Faculty Member Publication Record Control Mechanisms

There are two control mechanisms (Appendix E, Section C) employed by the FACULTY MEMBER application. First, every faculty member is assigned a unique identification code. This protects both the confidentiality of faculty member data and the integrity of the system. Second, there is a processing control to ensure that every faculty member in the FPDS database does in fact have publication data associated with his/her name. This means that the technical research clerk can periodically query the database for FACULTY MEMBER objects by generating the Publication Report By Faculty Member.

5. User Review

The final stage of the requirements phase was a meeting with Professor Liao, Professor Mehay, Chan Burns and Professor Whipple (Chairman of the Administrative Sciences Department) to review the forms and reports for completeness and appropriate format. The review lasted approximately one-

half hour, requiring rework for some reports and the generation of one additional report. Subsequently, all the requirements documentation was approved by the users.

III. EVALUATION/DESIGN PHASE

A. EVALUATION PHASE

1. Methodology

The third phase for system development is system evaluation. This stage typically consists of an evaluation of several items of concern to the developer and customer.

First, alternative system application architectures are identified. The approach taken is to determine if there are other system architectures available that would better serve the needs of the one currently being developed and planning to be used. Additionally, the availability of alternative architectures needs to be determined. Most often an organization cannot afford the most efficient, state of the art technology.

Second, now that the requirements for the system are known and basic alternative solutions have been specified, it is time to reassess the feasibility of the application. For instance, can the FPDS application be successfully implemented to meet the needs of the user? The detail of the completed requirements can provide insight into this question that may provide further development requirements. Added time, energy and resources should not be spent on a system that will never be completed. There are a myriad of large organizations

abandoning development of a system after investing millions of dollars. Obviously, careful and intricate evaluation and analysis of system requirements may prevent this from occurring.

Finally, user requirements are revaluated and appraised to ensure they fall within the scope of the project. If all requirements cannot be met during the project, then priorities need to be established and selected requirements deferred to future projects.

2. Approach

The evaluation phase can be very effective if a good understanding of the expected requirements during the Definition and Requirements Phase are thoroughly evaluated. Concerning FPDS, it was decided that the new system would be developed using the software package Dbase IV for ease of integration into an already extensively used software package. Another factor was the availability of Dbase IV on a large number of computers at the Naval Postgraduate School. The hardware system was not a consideration because the new system could be functional on the Administrative Sciences Department office's IBM compatible 386 PC.

Using the structured maintenance approach it was clear that the planned system could be accomplished. Feasibility was not a problem. It was determined that all the requirements documented during the Requirements Phase could be

completed and delivered on time. This was concluded by examining the scope of the new FPDS project and estimating the time required for a single student to perform the entire system development and implementation.

B. DESIGN PHASE

In an object-oriented approach to database design, the objective is to translate the plans developed in the Requirements Phase into a set of plans for the database structure and processes. The first step is to determine the number of applications (only one in this case) and the scope of each one. The Requirements Phase should have already pinpointed exactly what the user wanted and what the application should do; the Design Phase will determine how to accomplish those objectives. Database design plans are developed from object diagrams and object definitions which consist of Relation Diagrams, Relation Definitions and the constraints on the relations.

1. Logical Database Design

The two objects involved in the FPDS application are illustrated in Appendix A and the design of the database that supports these applications are illustrated in the Relational Diagram outlined in Appendix F. There is a relation named for each object (FACULTY MEMBER and PUBLICATION).

The underlined attributes (A_CODE, ID_CODE, T_CODE, FACULTY MEMBER) represent the primary keys in the relation.

A key is a group of one or more attributes that uniquely identifies a tuple of a relation. [Ref. 1:p. 139] The FACULTY MEMBER object is related to the PUBLICATION object in a one-to-many relationship. The "fork" at the PUBLICATION end of the relationship means that there are potentially many publication items for each FACULTY MEMBER. The absence of a "fork" at the other end indicates that each publication item can be assigned at the most, one FACULTY MEMBER at any one time. The bar on the end of both lines indicates that a publication record must correspond to a FACULTY MEMBER record. The circle near PUBLICATION indicates that a faculty member may have a publication.

When relations are designed from object diagrams, they are normalized to prevent modification anomalies from being introduced into the database. Anomalies are flaws in the relations that can cause undesirable effects when modifying a database. Types of anomalies include deletion and insertion. A deletion anomaly refers to a problem that can occur when deleting an entity inadvertently deletes data from another entity. An insertion anomaly occurs when the ability to insert data about one entity is restricted until additional information is known about another entity. These conditions are serious disrupters to database design and were of major concern when the FPDS relation was designed. During the normalization process, the intent is to identify and eliminate deletion and insertion anomalies.

Testing relations in accordance with a series of normal forms is the method used during the normalization process. The term "normal form" refers to the class of relations and techniques for identifying and preventing anomalies. There are a total of seven normal forms, the highest level of which is the Domain/Key Normal Form (DK/NF). When a relation is in this form it is said to have no modification anomalies associated with it. The first three normal forms are described below, giving a brief definition of each and the requirements the FACULTY MEMBER relation satisfies. A relation in third normal form is usually adequate from a practical point of view.

a. First Normal Form

The one and only requirement of this form is that the relation must have no repeating groups. [Ref. 1:p. 142] The FACULTY MEMBER relation meets this requirement.

b. Second Normal Form

To meet the conditions of this stage, all non-key attributes must be dependent on all the key. [Ref. 1:p. 142] FACULTY MEMBER has a single attribute key (ID_CODE), which fulfills this requirement.

c. Third Normal Form

The relation must be in second normal form and have no transitive dependencies. [Ref. 1:p. 142] FACULTY

MEMBER has no apparent dependencies so the requirements of this form are met.

2. FPDS Application Design

At this point in the design phase the menu design, screen design, logic and materializations are specified.

a. Menu Design

The first step in menu design when designing an application is to decide whether the application should be menu driven or command driven. For this application, the developer decided that the FPDS application should be menu driven because menus are basically self-explanatory and user friendly. This in turn makes them a lot easier for the user to use than using commands.

The FPDS menu hierarchy design is depicted in Appendix F. Main menu options are listed with underlying submenus and their selections. The only submenu not illustrated provides the user with choosing either the screen, LPT1, LPT2 or writing a file as an option when printing reports. Appendix F, section B, characterizes in detail the selection of each line item in the main menu and what their associative pop-up menus denote.

b. Screen Design

Screen design begins with determining exactly what information and fields should be placed on the screen. Physical screen limitations need to be taken into

consideration when designing the arrangement of data to fit on the screen.

The "Enter/Edit Faculty Publication Information" data entry form illustrated in Appendix D, section A, had to be designed in such a way to meet Dbase IV's physical constraints. Custom forms in Dbase IV can be as wide as 80 columns. The screen design for FPDS is one page. This page consists of all applicable faculty member and publication data required for the FPDS application. This entry screen was developed as efficiently as possible in order to make the data entry process as easy as possible for the end user. For example, the first space in the Lastname field will always be a capital letter, whether the end user is typing in lower or upper case. Also, the entire Initial field and ID_CODE field will always be in capital letters.

Another design feature allows multiple choice selections in the T_CODE, A_CODE, Type of Publication and Area of Publication fields. This permits the user to scroll through the different selections in each field and choose the one applicable for the current data being entered. This is a very efficient design that saves data entry time and one that is less frustrating to the user.

c. Materialization

FPDS initial application design consisted of seven reports. A final review of the FPDS prototype before system

implementation resulted in the generation of one additional report named "Faculty Member Name by Publication Year". A Dbase view report file was designed for each report. The view is a representation of a relation using only the fields required for the views use. Appendix I, section B, illustrates the views and reports required for FPDS.

FPDS report formats were decided during interviews with the users. All reports were formatted to be printed on 8 by 11.5 inch paper, 60 total lines with a page number positioned one inch from the bottom of every printed page.

Dbase IV provides three selections for report design - column layout, form layout and mailmerge layout. The form layout option was used for all FPDS reports.

d. Logic

FPDS logic and pseudo code are illustrated in Appendix I. Appendix I is structured such that every menu item is evaluated explaining when the embedded code is activated.

IV. IMPLEMENTATION PHASE

A. SYSTEM PROGRAMMING

The goal of the implementation phase is to construct the system in accordance with the design blueprint. In the case of FPDS, specific programs were required to be written by the developer to meet this objective. With regard to Dbase IV, code is automatically generated and programs written for each system function that is constructed in the control center. Additional coding that is required to meet system requirements that cannot be automatically generated must be written using Dbase IV's programming language. Once the FPDS database, views, forms and reports were developed, the system could then be fully implemented into the FPDS application program. Appendix I, section A, defines each menu selection and the special function programs and procedures that were physically coded to meet the distinctive operations required by FPDS. The following programs are described in detail below. The SEEKMEM and SEEKLAST programs, which locate a "faculty member"; SEEKAREA and SEEKTYPE programs, locates publication "area" and "type"; SEEKYEAR program, locates publication by "year"; SKYRAREA and SKYRTYPE, locates publication "area" and "type" according to "year"; SKYRMEM program, locates "faculty

member" according to "year" of publication; and SKYRMNTH program, locates publication by "year" and "month".

1. **SEEKMEM Program**

The SEEKMEM program is called by the FIND FACULTY MEMBER submenu selection. This program searches the FPDS database for the faculty member's ID_CODE that is entered by the end user. Either that record is returned or a message appears stating that the ID_CODE was not found and to verify the input. Also, the user has the option to seek another record or return to the main menu before exiting the program.

2. **SEEKLAST Program**

The SEEKLAST program is called by the SELECT FACULTY MEMBER TO PRINT submenu selection. With this program, the user inputs a faculty member's lastname, then the database is searched and a report is generated. Again, the user will get a record "not found" message or have the option to print another report or exit to the main menu.

3. **SEEKAREA Program**

The SEEKAREA program is called by the SELECT PUB AREA TO PRINT submenu selection. The following publication area codes are displayed when this program is activated:

AC = Acquisition & Contracting
CI = Computer & Information Systems
FM = Financial Management
GM = General Organization, Management & Communication
LI = Logistics & Transportation
MP = Manpower, Personnel, Training Analysis & Economics
PA = Policy Analysis

The end user selects and enters one of the two digit codes and a report for that publication area is automatically generated. If an erroneous code is entered a "not found" message will be displayed, otherwise the option to print another report will be made available.

4. **SEEKTYPE Program**

The SEEKTYPE program is called by the SELECT PUB TYPE TO PRINT submenu selection. It is the same as the SEEKAREA program parameters mentioned above except publication type codes are selected for report generation. These codes are as follows:

BK = Book
BC = Book Chapter
BR = Book Review
CP = Conference Presentation
CR = Conference Paper
CS = Conference Proceeding
DO = Other DOD Report
JA = Journal Articles
TR = Technical Reports
WP = As Working Papers
QP = Colloquium Presentation

Again, the end user selects and enters one of the two digit codes and a report for that publication type is automatically generated. If an erroneous code is entered a "not found" message will be displayed, otherwise the option to print another report will be made available.

5. **SEEKYEAR Program**

The SEEKYEAR program is called by the SELECT YEAR TO PRINT submenu selection. The end user inputs a four digit

year (i.e., 1991) and the program searches the database for all publications written in that year and prints the applicable report. The option to select another year and print a report is also available.

6. **SKYRAREA Program**

The SKYRAREA program is called by the SELECT YEAR/PRINT YEAR & PUB AREA submenu selection. Again, a four digit year is entered and all publications satisfying that year are found and printed, broken down by Publication Area. The option to print another report is again available.

7. **SKYRTYPE Program**

The SKYRTYPE program is called by the SELECT YEAR/PRINT YEAR & PUB TYPE submenu selection. This program is the same as the SKYRAREA program parameters mentioned above except the report is broken down by Publication Type.

8. **SKYRMEM Program**

The SKYRMEM program is called by the SELECT YEAR/PRINT FACULTY MEMBER submenu selection. This program lists every publication a faculty member has written for the year entered by the end user.

9. **SKYRMNTH Program**

The SKYRMNTH program is called by the SELECT YEAR/PRINT PUB TYPE BY MONTH submenu selection. Once a year has been entered by the end user, a report will be generated

listing the year and month and type of publication for every faculty member in the database.

B. PROGRAMMING LIMITATIONS OF DBASE IV

In some instances there are rules that govern the physical layout of data element patterns while programming in Dbase IV. For example, relation attribute names will have to be changed to meet Dbase IV's field name requirement not to exceed 10 characters. The field names must start with an alpha character and then and only then can they be followed by numbers. The underscore (_) is the only nonalphanumeric character allowed in the name. Each field must also be characterized as one of six data types used in Dbase IV:

1. Character - text only
2. Numeric - numeric values only
3. Float - used for numbers that do not have a fixed number of decimal places.
4. Date - the date stored in the format MM/DD/YY
5. Memo - field that allows large volume of text

The total number of fields in the property data file is 14. This easily meets Dbase IV's maximum restriction of 255 fields for a single database record.

C. TESTING

Each section of the FPDS application was completely checked. Inputs were provided to the system and all system outputs were carefully analyzed to ensure that they met all

system functionality requirements. This process was chosen to guarantee the correctness of the system as a whole. During the testing phase, minor errors were detected and corrected. Eventually, the entire application was tested to see if there were any problems that the developer may have overlooked. The test was successfully completed and approved by all concerned.

D. INSTALLATION

The last step of the implementation phase was installing the FPDS application. Since FPDS was a newly developed system, it was easily loaded on the Administrative Sciences Department technical research clerk's PC and was available for immediate use.

V. CONCLUSIONS

A. REMARKS

The development and implementation of FPDS and the detailed depiction of this evolution was the central theme for this thesis. It consisted of successfully designing, developing and implementing a Faculty Research and Publication Database System that could be used by the Administrative Sciences Department. Building the application itself was made easier by the programming techniques offered by Dbase IV (i.e., automatic generation of code). The most difficult aspect was translating the Faculty Member and Publication data into the required report format. During this stage, Dbase IV programming language was used to ensure the precise information was queried from the FPDS database and displayed in the proper report format. Possible follow on work is discussed below.

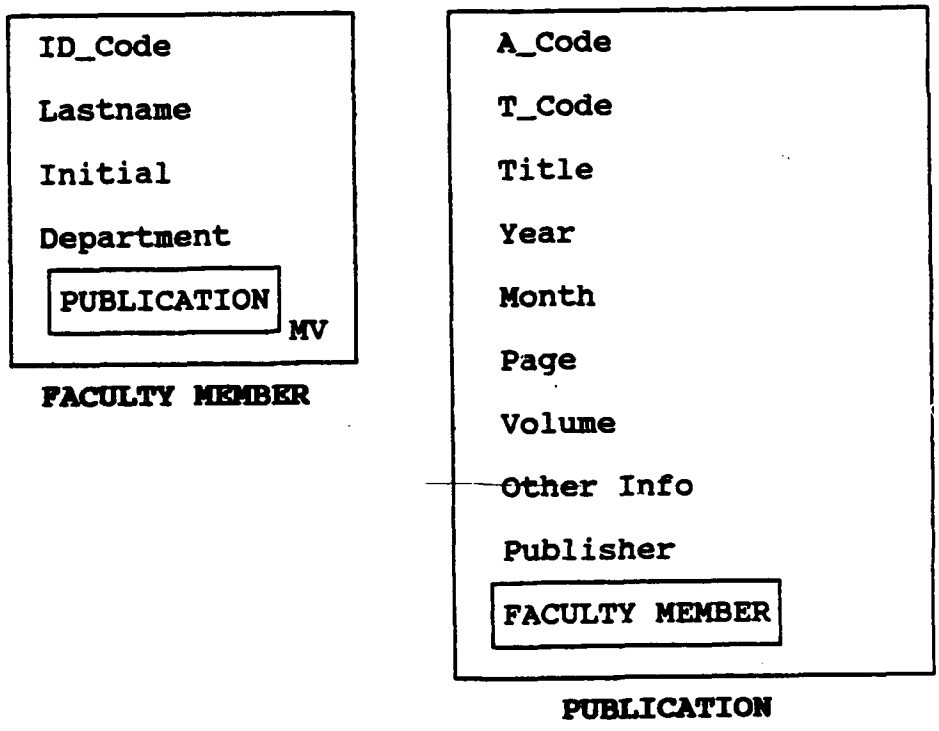
It has already been suggested that a future add on to the FPDS application would be an operation that statistically breaks down different categories associated with the FPDS database. For instance, the end user may want to know how many specific types of publications a particular faculty member has written (i.e., Faculty member "John Doe" has written "10" publications that were of the type "Book

Chapters"). This would require the FPDS database to be queried and statistical associations to be generated amongst various fields.

Lastly, a recommendation would be to explore the possibility of integrating the FPDS application with Dbase IV, version 1.5. The application would be completely compatible with this environment and the biggest benefit would allow the FPDS application to be mouse driven. This would save an insurmountable amount of time because Dbase IV, version 1.1, is not mouse driven and requires repeated key stroke entries.

APPENDIX A

OBJECT DIAGRAMS



MV = *Multivalued*

= *Object Property*

APPENDIX B

A: **OBJECT DEFINITIONS**

Faculty Member Object

ID_Code; Faculty-Member-Identification-Codes
Lastname; Faculty-Member-Lastname
Initial; Faculty-Member-Initials
Department; Naval-Postgraduate-School-Department
PUBLICATION; Publication OBJECT; MV; SUBSET [Faculty Member, Type of Pub, Area of Pub]

Publication Object

A_Code; Area-of-Publication-Identification-Codes
T_Code; Type-of-Publication-Identification-Codes
Title; Title-of-Publication
Year; Year-of-Publication
Month; Month-of-Publication
Page; Page-Numbers-of-Publication
Volume; Volume-Numbers-of-Publication
Other_Info; Additional-Publication-Information
Publisher; Publication-Publisher
FACULTY MEMBER; Faculty Member OBJECT; SUBSET [ID_Code]

B: DOMAIN DEFINITIONS

Area-of-Publication-Identification-Codes:
Text 2
Unique and Permanent Publication Area Identification Code

Faculty-Member-Identification-Codes:
Text 2
Unique and Permanent Faculty Member Identification Code

Faculty-Member-Initials:
Text 4
First and Middle Initials of Faculty Members with-in Administrative Sciences Department

Faculty-Member-Lastname:
Text 25
Lastname of Faculty Member

Month-of-Publication:
Text 8, Mask MM/DD/YY
where MM is 2 digits for Month (01-12)
Represents month Publication was Published/Presented

Naval-Postgraduate-School-Department:
Text 35
Official University Department Name

Other-Information:
Text 60
Additional Pertinent Publication Information

Page-Numbers:
Text 15
Number of Pages for Publication

Publication-Publisher:
Text 50
Name of Publication Publisher

Type-of-Publication-Identification-Codes:
Text 2
Unique and Permanent Publication Type Identification Code

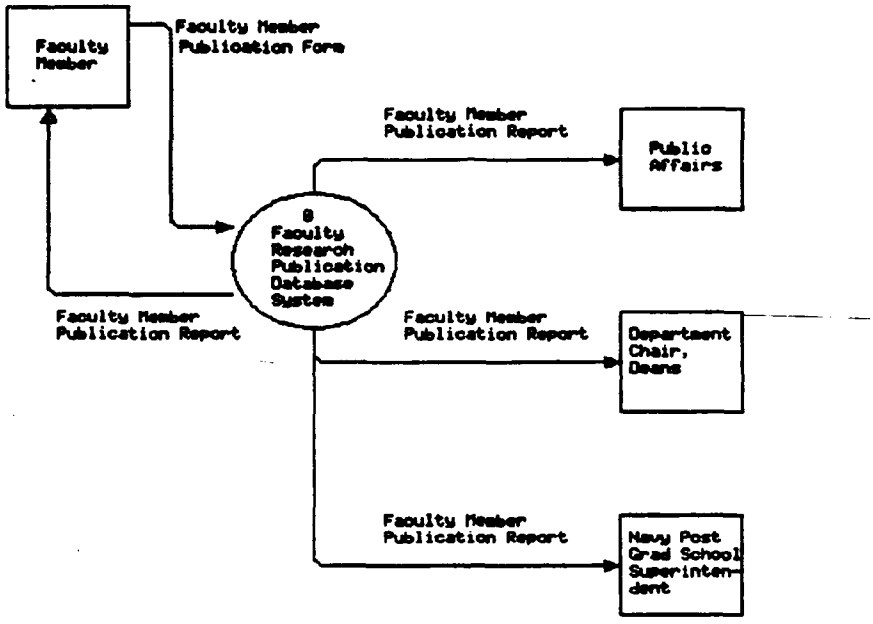
Title-of-Publication:
Text 120
Name of Publication

Volume-Number:
Text 15
Volume Number of Publication

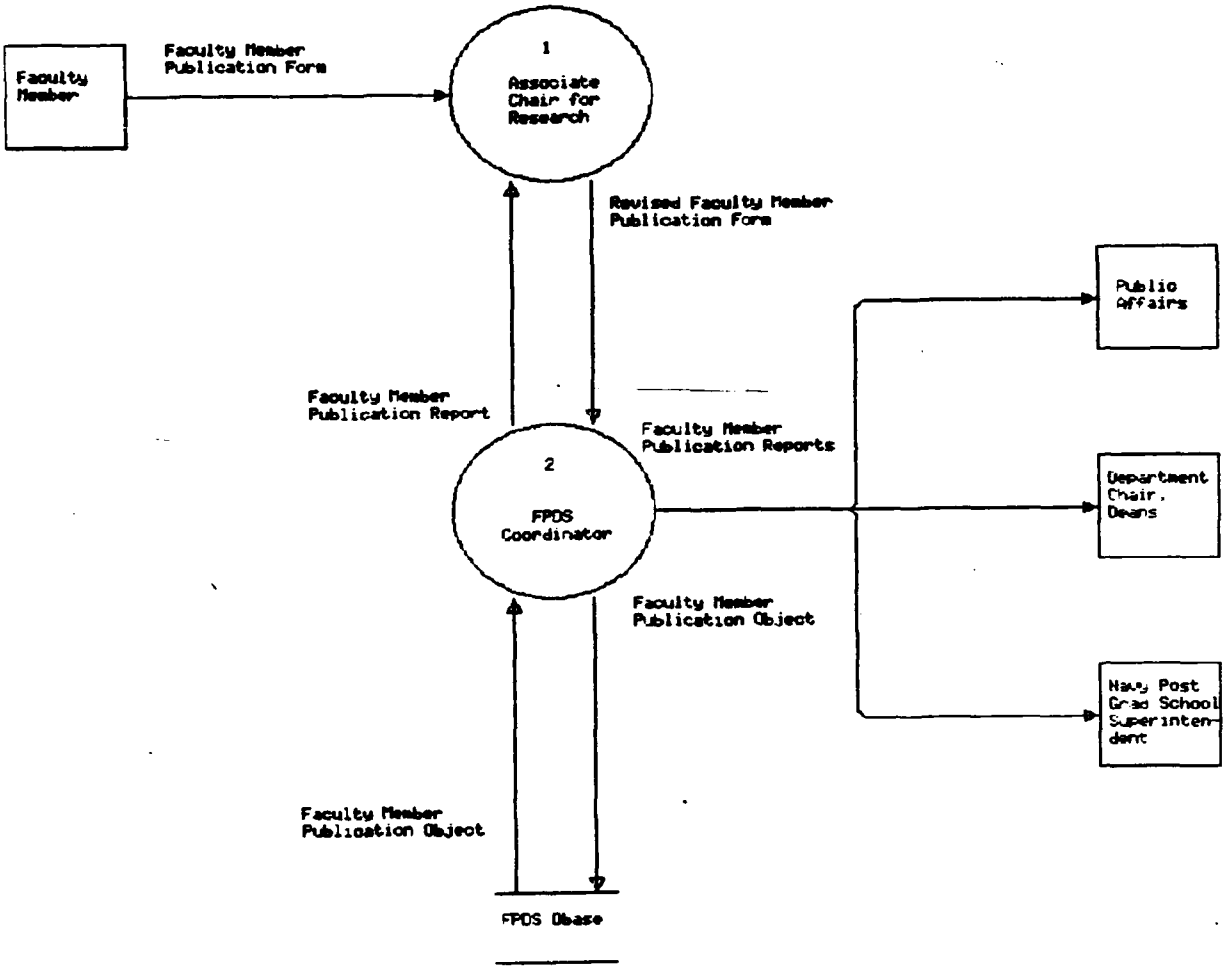
Year-of-Publication:
Text 8, Mask MM/DD/YY
Where YY is 2 digits for Year
Represents Year Publication was Published/Presented

APPENDIX C

A. FPDS CONTEXT DATA FLOW DIAGRAM

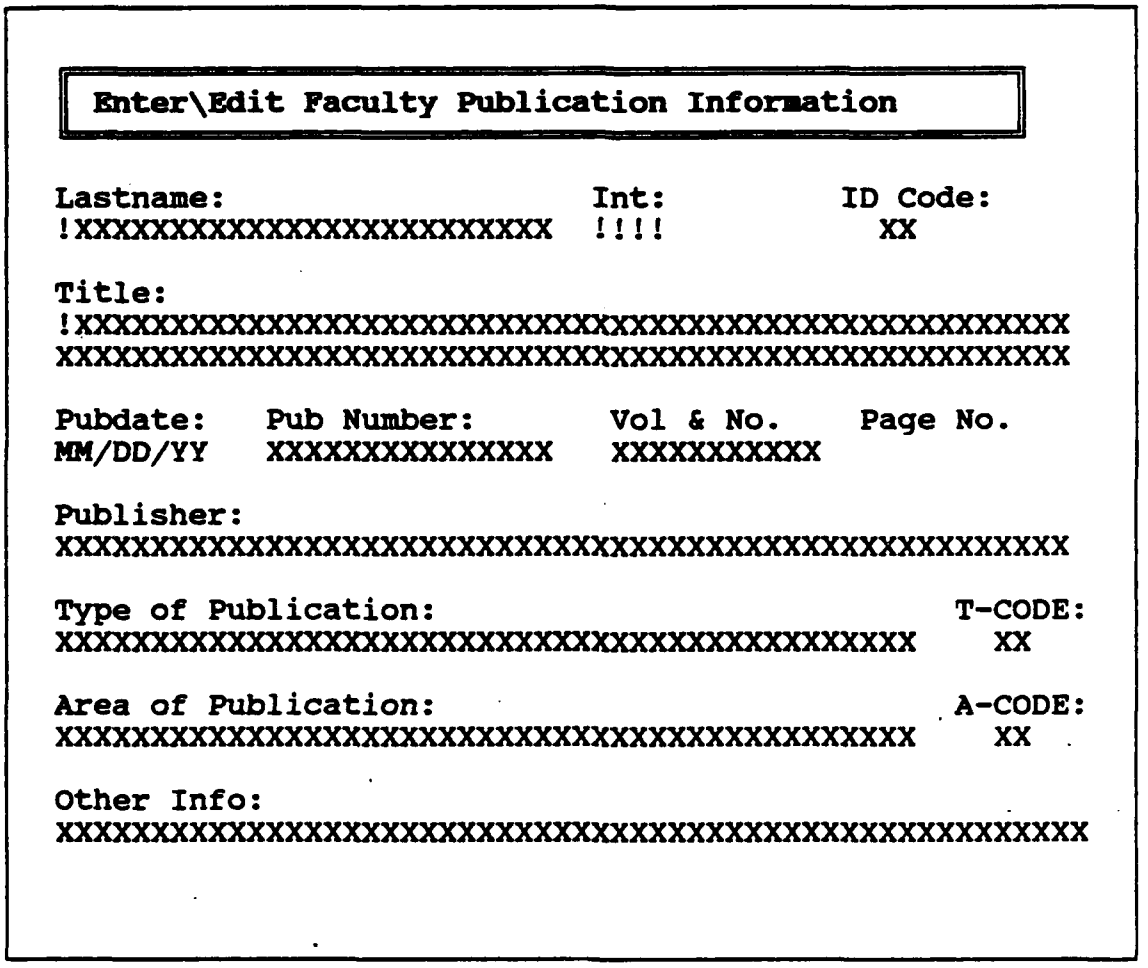


B. FPDS SYSTEM DIAGRAM



APPENDIX D

A. SAMPLE FACULTY MEMBER/PUBLICATION DATA ENTRY FORM



Enter\Edit Faculty Publication Information

Lastname: Int: ID Code:
!XXXXXXXXXXXXXXXXXXXXXXXXX !!!! XX

Title:
!XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Pubdate: Pub Number: Vol & No. Page No.
MM/DD/YY XXXXXXXXXXXXXXX XXXXXXXXXXX

Publisher:
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Type of Publication: T-CODE:
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XX

Area of Publication: A-CODE:
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XX

Other Info:
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

B. SAMPLE FACULTY MEMBER PUBLICATION INPUT FORM

Administrative Sciences Department
Faculty Member Publication
Input Form

1. Faculty Member Lastname:_____

2. Date Of Publication/Presentation:__/__/__
   (Use MM/DD/YY format)

3. Title of Publication:
   _____
   _____
   _____

4. If a Conference Presentation/Colloquium indicate subject and location of Presentation:
   _____
   _____

5. Check one of the following boxes to indicate **TYPE** of Publication/Presentation:

☐ BOOK	☐ OTHER DOD REPORTS
☐ BOOK CHAPTER	☐ JOURNAL ARTICLE
☐ BOOK REVIEW	☐ TECHNICAL REPORTS
☐ CONF. PRESENTATION	☐ AS WORKING PAPERS
☐ CONF. PRESENTATION	☐ CONF. PROCEEDING
☐ COLLOQUIUM PRESENT.	

6. Check one of the following boxes to indicate **AREA** of Publication:

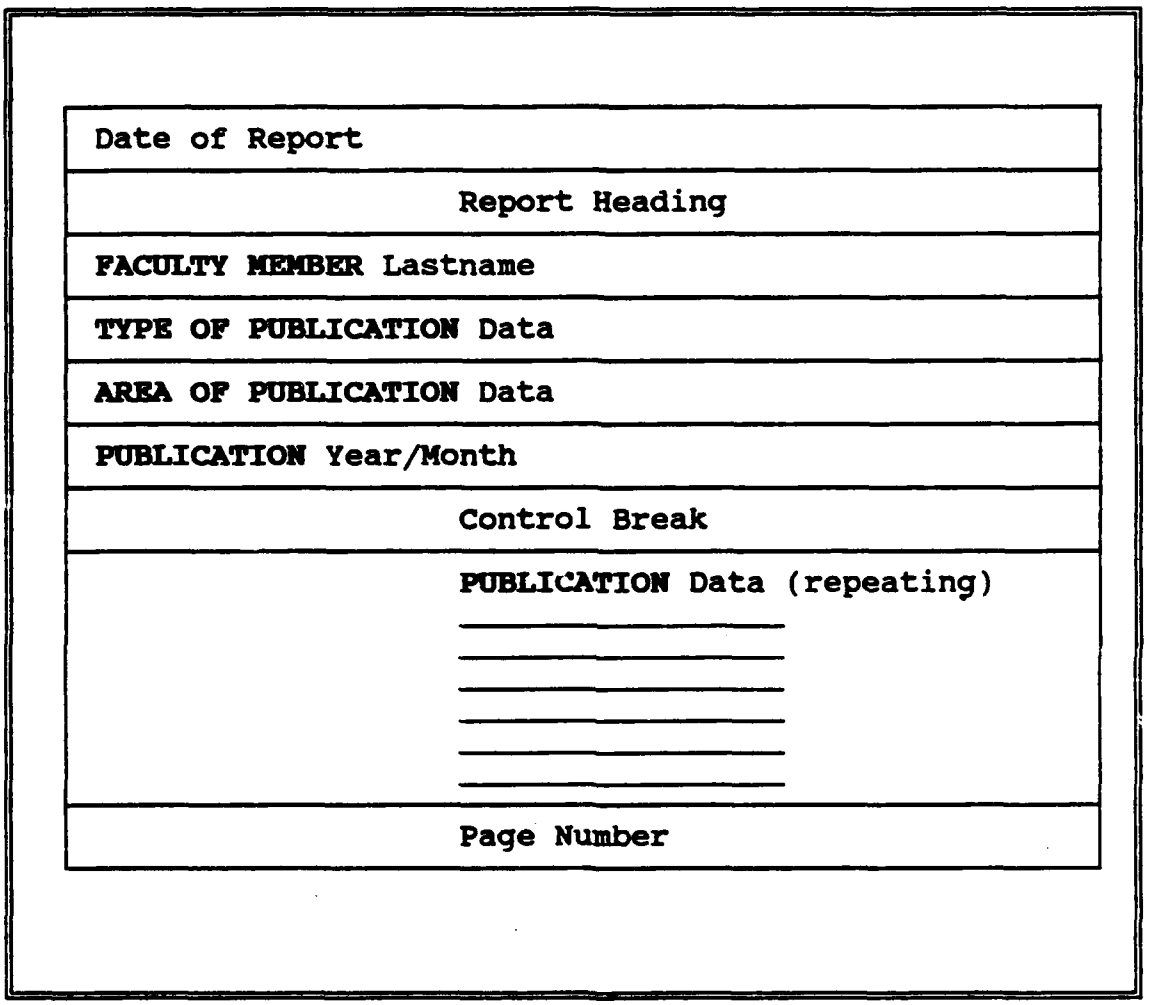
☐ Acquisition & Contracting
☐ Computer & Information Systems
☐ Financial Management
☐ General Organization, Management & Communication
☐ Logistics & Transportation
☐ Policy Analysis

7. Indicate the following, if applicable:

Volume #:_____ Page #:_____
Technical Pub #:_____

8. Submit completed form to **Associate Chair for Research.**

C. SAMPLE PUBLICATION REPORT FORMAT



APPENDIX E

A. **FACULTY MEMBER PUBLICATION RECORD** Update Mechanisms

Add new **FACULTY MEMBER** data
- A. Inputs
  - * List of faculty members - from registrar
- B. Outputs
  - * New **FACULTY MEMBER** object in database
- C. Processing notes
  - * Faculty member must be assigned unique identification code
- D. Volume
  - * 70 faculty members (40 tenure track; 30 contracted)
- E. Frequency
  - * Unpredictable

Add publication data to **FACULTY MEMBER**
- A. Inputs
  - * **FACULTY MEMBER** object instance from database
  - * Publication name and criteria from faculty member
  - * **PUBLICATION** object from database
- B. Outputs
  - * Modified object instance to database
  - * Research and Publication report to faculty member
- C. Processing notes
  - * This function adds publication data to faculty member
  - * Processing clerk needs option to read **FACULTY MEMBER** object during processing
  - * Valid faculty member identification code required
- D. Volume
  - * 70 faculty members
- E. Frequency
  - * Unpredictable - whenever a faculty member has completed a publication

Edit data in **FACULTY MEMBER**
- A. Inputs
  - * **FACULTY MEMBER** object instance from database
  - * **FACULTY MEMBER** change data from registrar/faculty member
- B. Outputs
  - * Modified instance to database
- C. Processing notes
  - * This function changes **FACULTY MEMBER** data

* Valid faculty member identification code required

D. Volume
* 70 faculty members

E. Frequency
* Unpredictable

Edit publication data in **FACULTY MEMBER**

A. Inputs
* **FACULTY MEMBER** object instance from database
* From faculty member when publication status changes
* **PUBLICATION** object from database

B. Outputs
* Modified object instance from database
* Research and Publication report to faculty member

C. Processing notes
* This function changes publication data
* Processing clerk needs option to read **FACULTY MEMBER** object during processing
* Valid faculty member identification code required

D. Volume
* 70 faculty members

E. Frequency
* Unpredictable

Delete **FACULTY MEMBER** data

A. Inputs
* List of faculty member(s) to delete - from registrar
* **FACULTY MEMBER** objects in database

B. Outputs
* Confirmation notice on screen

C. Processing notes
* Backup of **FACULTY MEMBER** data should be made prior to processing a batch of deletion requests

D. Volume
* 70 faculty members

E. Frequency
* Unpredictable - as required

B. **FACULTY MEMBER PUBLICATION RECORD** Display Mechanisms

Query on **FACULTY MEMBER**

A. Output description
   * Report form showing all publication data for faculty member
B. Source data
   * **FACULTY MEMBER** object
   * Faculty member lastname or identification code keyed by processing clerk
C. Processing notes
   * Used by Administrative Sciences Department clerk
   * Valid faculty member lastname or identification code is required
D. Volume
   * 10 per week
E. Frequency
   * once per month or upon request

FACULTY MEMBER/PUBLICATION list

A. Output description
   * Report form listing the names or every faculty member and each publication faculty member has authorship
B. Source data
   * **FACULTY MEMBER** object
   * Faculty member lastname
C. Processing notes
   * Sent to Department Chair/faculty member when report is completed
   * Valid lastname required to generate report
   * If wrong lastname entered option to try again is available
D. Volume
   * 70 faculty members
E. Frequency
   * Once per month
   * Upon faculty member/Department Chair request

Publication type/area report

A. Output description
   * Report form listing every faculty member publication by publication type or area
B. Source data
   * **FACULTY MEMBER** object
   * Publication type code or publication area code
C. Processing notes
   * Sent to Department Chair/faculty member when report is completed
   * Valid publication type/area code must be entered

* If wrong code entered option to try again is available

D. Volume
* 70 faculty members

E. Frequency
* once per month
* Upon faculty member/Department Chair request

Publication year/month report

A. Output description
* Report form listing year and month publication was published

B. Source data
* **FACULTY MEMBER** object
* Publication year

C. Processing notes
* Sent to Department Chair/faculty member when report is completed
* Valid year is required
* If wrong year entered option to try again is available

D. Volume
* 70 faculty members

E. Frequency
* once per month
* Upon faculty member/Department Chair request

Publication year type/area report

A. Output description
* Report form listing year and type/area of publication

B. Source data
* **FACULTY MEMBER** object
* Publication year and type/area

C. Processing notes
* Sent to Department Chair/faculty member when report is completed
* Valid year is required
* If wrong year entered option to try again is available

D. Volume
* 70 faculty members

E. Frequency
* once per month
* Upon faculty member/Department Chair request

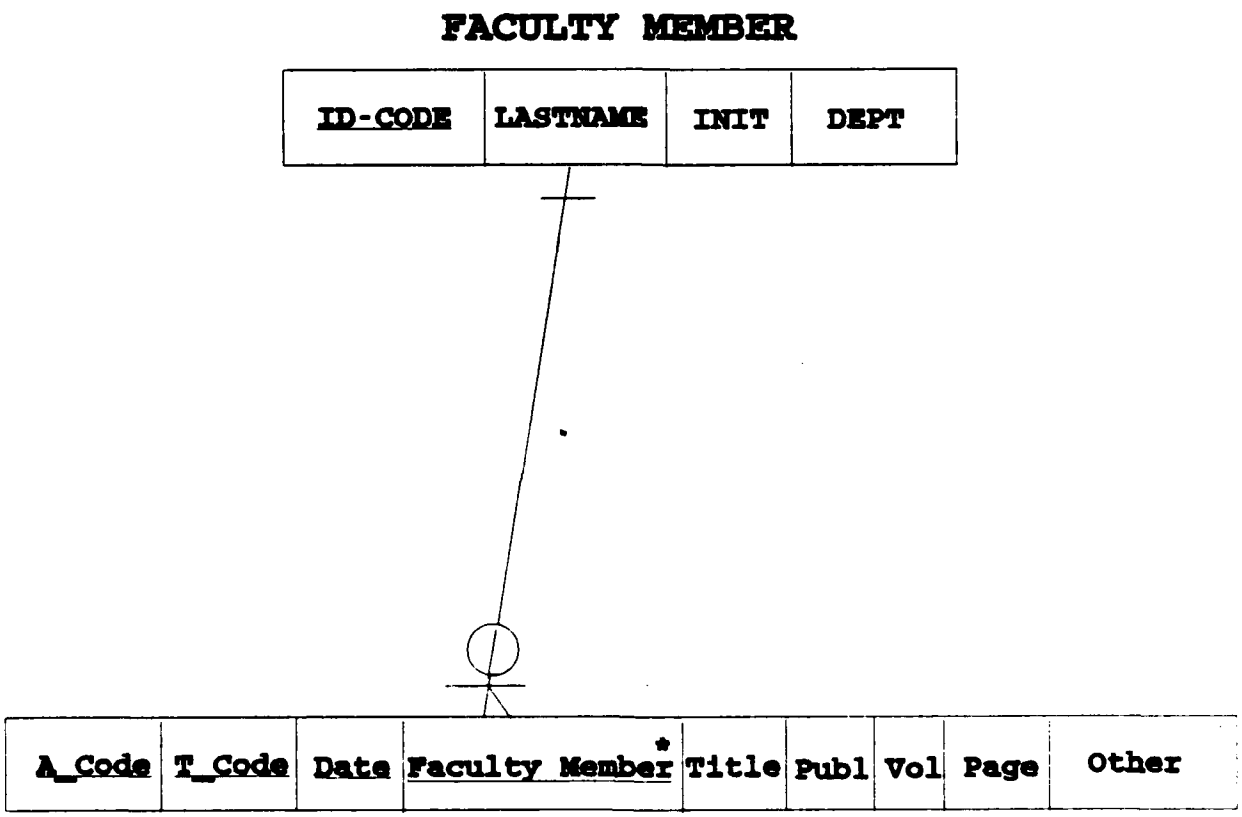
C. **FACULTY MEMBER PUBLICATION RECORD** Control Mechanisms

1. Provide every faculty member in the Administrative Sciences Department with a unique identification code

2. Define procedures, forms, and reports to ensure accuracy of faculty member data

APPENDIX F

RELATIONAL DIAGRAM



Key Attributes are Underlined

* = Foreign Keys

APPENDIX G

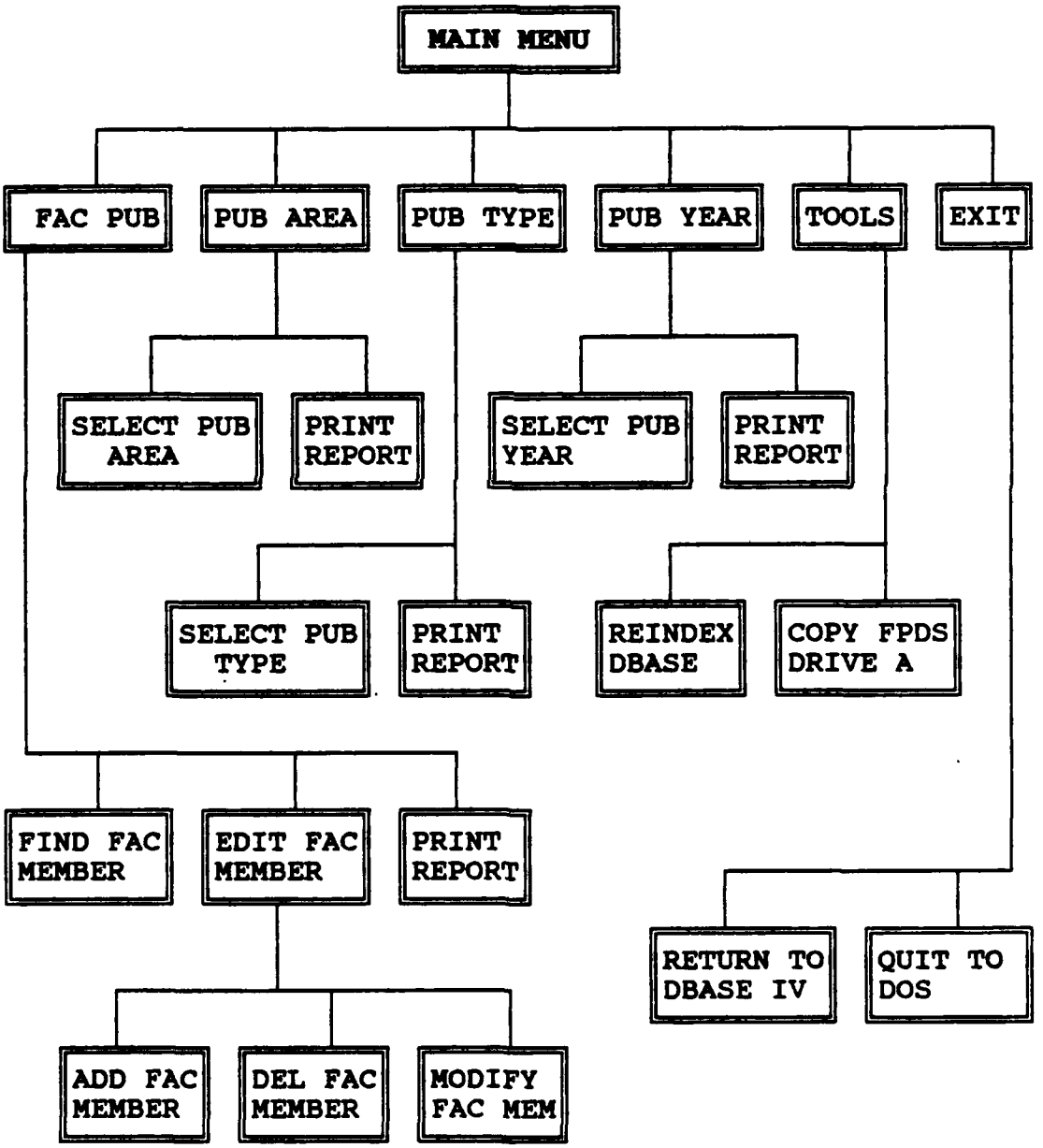
RELATION DEFINITION

FACULTY MEMBER		
ATTRIBUTE	LENGTH	TYPE
ID-Code	2	CHAR
Lastname	25	CHAR
Initial	2	CHAR
Department	35	CHAR

PUBLICATION		
ATTRIBUTE	LENGTH	TYPE
A_Code	2	CHAR
T_Code	2	CHAR
Date	8	DATE
Faculty Member	25	CHAR
Title	120	CHAR
Publisher	50	CHAR
Volume	15	CHAR
Page	15	CHAR
Other Info	60	CHAR

APPENDIX H

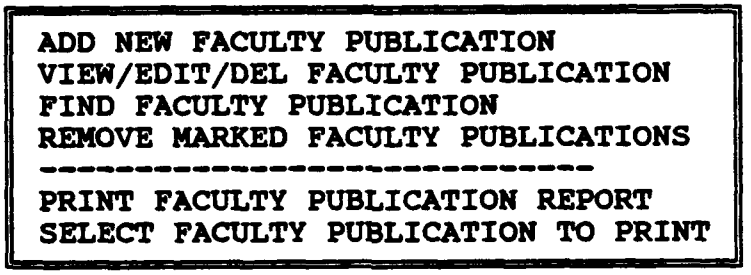
A. MENU HIERARCHY



B. SAMPLE MENUS

1. Main Menu

2. Sub Menu for FAC PUB



3. Sub Menu for PUB AREA

4. Sub Menu for PUB TYPE

SAMPLE MENUS continued

5. Sub Menu for PUB YEAR

FAC PUB	PUB AREA	PUB TYPE	PUB YEAR	TOOLS	EXIT

PRINT FACULTY DBASE BY YEAR
PRINT FACULTY DBASE BY YEAR & PUB AREA
PRINT FACULTY DBASE BY YEAR & PUB TYPE
PRINT FACULTY DBASE BY YEAR & FACULTY MEMBER
SELECT YEAR TO PRINT
SELECT YEAR/PRINT YEAR & PUB AREA
SELECT YEAR/PRINT YEAR & PUB TYPE
SELECT YEAR/PRINT YEAR & FACULTY MEMBER
SELECT YEAR/PRINT PUB TYPE BY MONTH

6. Sub Menu for TOOLS

FAC PUB	PUB AREA	PUB TYPE	PUB YEAR	TOOLS	EXIT

REINDEX FACULTY DBASE
COPY APPLICATION TO A DRIVE

7. Sub Menu for EXIT

FAC PUB	PUB AREA	PUB TYPE	PUB YEAR	TOOLS	EXIT

RETURN TO DBASE IV CONTROL CENTER
RETURN TO DOS

APPENDIX I

A. FPDS LOGIC (pseudo code)

FPDS MAIN MENU:

```
  Activate Bar Menu MAINMENU
  Display FPDS main menu for available options
  Obtain entered option
  Option request validated
   Until [CTRL END] entered
     obtain entered option
     validate option request
     display menu for selected option
```

Add New Faculty Member menu:

```
   At prompt select FAC PUB from MAINMENU
   Selection activates submenu FACSUB
   At prompt select ADD NEW FACULTY MEMBER

   Selection activates Dbase code:

   ---------------------------------------------------------

   Use PUBSORT Order LASTNAME

   Set FORMAT to FACFORM
     APPEND
   Return

   ---------------------------------------------------------

   Enter New Faculty Member Data
   Store Faculty Member record
   Enter [CTRL END] or [ESC] to leave ADD NEW FACULTY
   MEMBER Application
   Return to submenu FACSUB
```

View/Edit/Del Faculty Member:

```
  At prompt select FAC PUB from MAINMENU
  Selection activates submenu FACSUB
  At prompt select VIEW/EDIT/DEL FACULTY MEMBER
  Display FACFORM form
   Options:
```

```
    Browse/View Faculty Member record(s)
    Edit Faculty Member record(s)

    MARK Faculty Member record(s) for Deletion
    (enter either [CTRL DEL] or [DEL])
    Store Faculty Member record
    Enter [CTRL END] or [ESC] to leave VIEW/EDIT/DEL
    FACULTY MEMBER Application
    Return to submenu FACSUB

Find Faculty Member:

  At prompt select FAC PUB from MAINMENU
  Selection activates submenu FACSUB
  At prompt select FIND FACULTY MEMBER

  Selection activates Dbase code:

  ------------------------------------------------------------

    Use PUBSORT order ID_CODE

    MID=space(2)
    DO FINDS

      ************************************************************
      ** Procedure: FINDS                                       **
      **                                                        **
      ** Define Procedure to enter Faculty Member's ID_Code**
      ** and to locate Faculty Member                           **
      **                                                        **
      ** This Procedure is part of FPDS written by Brian E.**
      ** Tansey                                                 **
      ************************************************************

    Procedure FINDS
     CLEAR
    Define window ENTER from 5,7 to 9,57 DOUBLE COLOR
    N/W,,GR+/N
     ACTIVATE window ENTER
    @ 1,3 say "ENTER FACULTY MEMBER'S ID_CODE TO LOCATE"
    GET MID
    READ
    SEEK MID
       IF FOUND()
          deactivate window ENTER
         EDIT
         CLEAR
         GO TOP
          CLEAR
         DO AGAIN
```

```
        ELSE
         deactivate window ENTER
         define window ERROR from 5,7 to 9,57  DOUBLE
         COLOR N/W*,,GR+/N
         activate window ERROR
         @ 1,3 say "RECORD NOT FOUND. VERIFY CÓDE
         ENTERED."
         WAIT
         deactivate window ERROR
         DO AGAIN
      ENDIF
RETURN

 ************************************************************
 ** Procedure: AGAIN                                       **
 **                                                        **
 ** Define Procedure to determine if end-user would        **
 ** like to enter another ID_CODE to locate another        **
 ** Faculty Member                                         **
 **                                                        **
 ** This Procedure is part of FPDS written by Brian        **
 ** E. Tansey                                              **
 ************************************************************

Procedure AGAIN
MYESNO=space(1)
Define window DOAGAIN from 11,7 to 15,65 DOUBLE COLOR
N/W,,GR+/N
Activate window DOAGAIN
@ 1,2 say "TO LOCATE ANOTHER MEMBER ENTER 'Y' OR 'N' TO
EXIT"
 GET MYESNO
READ
 Deactivate window DOAGAIN
   IF MYESNO="Y"
     DO FINDS
       ELSE
        CLEAR
        RETURN
   ENDIF
 CLEAR
```

Return to **FACSUB** submenu

Remove Marked Faculty Member:

When records have been marked for **DELETION**
At prompt select **REMOVE MARKED FACULTY MEMBER**
Selection packs database and removes all records that were marked for deletion

After database packed, automatically return to submenu **FACSUB**

Print Faculty Report:

At prompt select **FAC PUB** from **MAINMENU**
Selection activates submenu **FACSUB**
At prompt select **PRINT FACULTY REPORT**
Printer output option menu activated

At prompt select output destination (either to printer or screen)
Display report **PUBLAST**
After report printed, automatically return to submenu **FACSUB**

Select Faculty Member To Print:

At prompt select **FAC PUB** from **MAINMENU**
Selection activates submenu **FACSUB**
At prompt select **FACULTY MEMBER TO PRINT**

Selection activates Dbase code:

```
USE PUBSORT
INDEX ON (LASTNAME + TYPEOFPUB) TO GOTO
CLEAR
DO SEEKS

     ************************************************************
     ** Procedure: SEEKS                                       **
     **                                                        **
     ** Define Procedure to enter Faculty Member lastname      **
     ** and locate name to print PUBLAST report                **
     **                                                        **
     ** This Procedure is part of FPDS written by Brian       **
     ** E. Tansey                                              **
     ************************************************************

   PROCEDURE SEEKS
    MLAST=SPACE(25)
    DEFINE WINDOW last FROM 10,2 TO 15,75 DOUBLE COLOR
    N/W,,GR+/R
    ACTIVATE WINDOW last
    @ 1,2 SAY "Enter Faculty Member's last name to Print" GET
   MLAST
    READ
    SEEK MLAST
       IF FOUND ()
         DEACTIVATE WINDOW last
```

```
        _peject="none"
        _plength=60
        REPORT FORM PUBLAST TO PRINT FOR LASTNAME=MLAST
        GO TOP
        CLEAR
        DO SKAGAIN
           ELSE
             DEACTIVATE WINDOW last
             DEFINE WINDOW error FROM 10,10 TO 14,55 DOUBLE
             COLOR N/W*,,GR+/R
             ACTIVATE WINDOW error
             @ 1,6 SAY "Lastname NOT FOUND. Verify Entry."
             WAIT
             DEACTIVATE WINDOW error
             DO SKAGAIN
      ENDIF
   RETURN

    ************************************************************
    ** Procedure: SKAGAIN                                     **
    **                                                        **
    ** Define Procedure to determine if end-user would        **
    ** like to print another PUBLAST report                   **
    **                                                        **
    ** This Procedure is part of FPDS written by Brian        **
    ** E. Tansey                                              **
    ************************************************************

  PROCEDURE SKAGAIN
   SET SAFETY OFF
   MYESNO=SPACE(1)
   DEFINE WINDOW again FROM 10,5 TO 16,76 DOUBLE COLOR
   N/W,,GR+/R
   ACTIVATE WINDOW again
   @ 2,1 SAY "Enter 'Y' To print another name or 'N' to
   return to Main Menu" GET MYESNO
   READ
   DEACTIVATE WINDOW again
    IF MYESNO="Y"
      DO SEEKS
        ELSE
         CLEAR
    ENDIF
  RETURN
```

Return to **FACSUB** submenu

Print Faculty Dbase by Pub Area:

At prompt select **PUB AREA** from ***MAINMENU***

Selection activates submenu **AREA**
At prompt select **PRINT FACULTY DBASE BY PUB AREA**
Printer output option menu activated
At prompt select output destination (either to printer or screen)
Display report **PUBAREA**
After report printed, automatically return to submenu **FACSUB**

Select Pub Area to Print:

At prompt select **PUB AREA** from **MAINMENU**
Selection activates submenu **AREA**
At prompt select **PUB AREA TO PRINT**

Selection activates Dbase code:

DO finds

```
*************************************************************
** Procedure: FINDS                                        **
**                                                         **
** Define Procedure to enter Pub Area A_CODE to            **
** locate Pub Area and print PUBAREA report                **
**                                                         **
** This Procedure is part of FPDS written by Brian         **
** E. Tansey                                               **
*************************************************************

PROCEDURE finds
DEFINE WINDOW select FROM 3,5 TO 18,75 DOUBLE COLOR
N/W,,GR+/R
ACTIVATE WINDOW select
MAREA=SPACE(2)
@ 2,5 SAY "ENTER CODE TO SELECT PUBLICATION AREA TO
PRINT:" GET MAREA COLOR GR+

TEXT

     AC = Acquisition & Contracting
     CI = Computer & Information Systems
     FM = Financial Management
     GM = General Organization & Management
     LI = Logistics & Transportation
     MP = Manpower, Personnel, Training Analysis &
          Economics
ENDTEXT
```

```
USE PUBSORT ORDER A_CODE
DO convert
  IF FOUND ()
     DEACTIVATE WINDOW SELECT
     SET SAFETY OFF
    _peject="none"
    _plength=60
    INDEX ON (AREA + TYPEOFPUB) TO COVER
    REPORT FORM PUBAREA TO SCREEN FOR AREA=MAREA
    CLEAR
        DO oncemore
           ELSE
            DEACTIVATE WINDOW select
            DEFINE WINDOW error FROM 10,10 TO 14,50
            DOUBLE COLOR N/W*,,GR+/R
            ACTIVATE WINDOW error
            @ 1,6 SAY "Area NOT FOUND. Verify Entry."
            WAIT
              DO ONCEMORE
 ENDIF
RETURN

  ************************************************************
  ** Procedure: ONCEMORE                                    **
  **                                                        **
  ** Define Procedure to determine if end-user would        **
  ** like to print another PUBAREA report                   **
  **                                                        **
  ** This Procedure is part of FPDS written by Brian        **
  ** E. Tansey                                              **
  ************************************************************

PROCEDURE oncemore
DEACTIVATE WINDOW error
MYESNO=SPACE(1)
DEFINE WINDOW again FROM 10,5 TO 16,76 DOUBLE COLOR
N/W,,GR+/R
ACTIVATE WINDOW again
@ 2,1 SAY "ENTER 'Y' TO PRINT ANOTHER AREA OR 'N' TO
RETURN TO MAIN MENU" GET MYESNO
READ
DEACTIVATE WINDOW again
   IF MYESNO="Y"
     GO TOP
     DO FINDS
       ELSE
        CLEAR
       RETURN
   ENDIF
```

```
      ************************************************************
      ** Procedure: CONVERT                                     **
      **                                                        **
      ** Define Procedure to convert A_CODE to equal            **
      ** PUBAREA                                                **
      **                                                        **
      ** This Procedure is part of FPDS written by Brian       **
      ** E. Tansey                                              **
      ************************************************************

    PROCEDURE convert
     READ
     SEEK MAREA
     MAREA=AREA
    RETURN
```

Return to **AREA** submenu

Print Faculty Dbase by Pub Type:

At prompt select **PUB TYPE** from **MAINMENU**
Selection activates submenu **TYPE**
At prompt select **PRINT FACULTY DBASE BY PUB TYPE**
Printer output option menu activated

At prompt select output destination (either to printer or screen)
Display report **PUBTYPE**
After report printed, automatically return to submenu **FACSUB**

Select Pub Type to Print:

At prompt select **PUB TYPE** from **MAINMENU**
Selection activates submenu **TYPE**
At prompt select **PUB TYPE TO PRINT**

Selection activates Dbase code:

```
DO LOCATE
      ************************************************************
      ** Procedure: LOCATE                                      **
      **                                                        **
      ** Define Procedure to enter T_CODE to locate             **
      ** Pub Type and print PUBTYPE report                      **
      **                                                        **
      ** This Procedure is part of FPDS written by Brian       **
      ** E. Tansey                                              **
      ************************************************************
```

```
PROCEDURE locate
 DEFINE WINDOW surround FROM 3,1 TO 18,76 DOUBLE COLOR
 N/W,,GR+/R
 ACTIVATE WINDOW surround
 MTYPE=SPACE(2)
 @ 2,1 SAY "ENTER ONE OF THE FOLLOWING CODES:" GET MTYPE
 COLOR GR+

 TEXT

 BK=Book                              DO=Other DOD Reports
 BC=Book Chapter                      JA=Journal Articles
 BR=Book Review                       TR=Technical Reports
 CP=Conference Presentation           TH=Thesis
 CR=Conference Paper                  QP=Colloquium
                                         Presentation
 CS=Conference Proceeding             WP=As Working Papers

 ENDTEXT

USE PUBSORT ORDER T_CODE
DO equate
   IF FOUND ()
     DEACTIVATE WINDOW surround
     SET SAFETY OFF
     _peject = "none"
     _plength = 60
    INDEX ON (TYPEOFPUB + AREA) TO DOOR
    REPORT FORM PUBTYPE TO SCREEN FOR TYPEOFPUB=MTYPE
    CLEAR
       DO somemore
         ELSE
          DEACTIVATE WINDOW surround
          DEFINE WINDOW error FROM 10,10 TO 14,50 DOUBLE
          COLOR N/W*,,GR+/N
          ACTIVATE WINDOW error
          @ 1,6 SAY "Type NOT FOUND. Verify Entry."
          WAIT
            DO somemore
    ENDIF
RETURN
  ************************************************************
  ** Procedure: SOMEMORE                                    **
  **                                                        **
  ** Define Procedure to determine if end-user would        **
  ** like to print another PUBTYPE report                   **
  **                                                        **
  ** This Procedure is part of FPDS written by Brian        **
  ** E. Tansey                                              **
  ************************************************************
```

```
PROCEDURE somemore
 DEACTIVATE WINDOW error
 MYESNO=SPACE(1)
 DEFINE WINDOW again FROM 10,3 TO 16,73 DOUBLE COLOR
 N/W,,GR+/R
 ACTIVATE WINDOW again
 @ 2,1 SAY "ENTER 'Y' TO PRINT ANOTHER PUB OR 'N' TO EXIT
 TO MAIN MENU:" GET MYESNO
 READ
 DEACTIVATE WINDOW again
    IF MYESNO="Y"
      GO TOP
      DO locate
        ELSE
         CLEAR
        RETURN
    ENDIF

  ************************************************************
  ** Procedure: EQUATE                                      **
  **                                                        **
  ** Define Procedure to convert T_CODE to equal            **
  ** PUBTYPE                                                **
  **                                                        **
  ** This Procedure is part of FPDS written by Brian        **
  ** E. Tansey                                              **
  ************************************************************

PROCEDURE equate
 READ
 SEEK MTYPE
 MTYPE=TYPEOFPUB
RETURN
```

Return to **TYPE** submenu

Print Faculty Dbase by Year:

At prompt select **PUB YEAR** from **MAINMENU**
Selection activates submenu **YEAR**
At prompt select **PRINT FACULTY DBASE BY YEAR**
Printer output option menu activated
At prompt select output destination (either to printer or screen)
Display report **PUBYEAR**
After report printed, automatically return to submenu **YEAR**

Print Faculty Dbase by Year and Pub Area:

At prompt select **PUB YEAR** from **MAINMENU**

Selection activates submenu **YEAR**
At prompt select **PRINT FACULTY DBASE BY YEAR & PUB AREA**
Printer output option menu activated
At prompt select output destination (either to printer or screen)
Display report **YEARAREA**
After report printed, automatically return to submenu **YEAR**

Print Faculty Dbase by Year and Pub Type:

At prompt select **PUB YEAR** from **MAINMENU**
Selection activates submenu **YEAR**
At prompt select **PRINT FACULTY DBASE BY YEAR & PUB TYPE**
Printer output option menu activated
At prompt select output destination (either to printer or screen)
Display report **YEARTYPE**
After report printed, automatically return to submenu **YEAR**

Print Faculty Dbase by Year and Faculty Member:

At prompt select **PUB YEAR** from **MAINMENU**
Selection activates submenu **YEAR**
At prompt select **PRINT FACULTY DBASE BY YEAR & FACULTY MEMBER**
Printer output option menu activated
At prompt select output destination (either to printer or screen)
Display report **YEARMEM**
After report printed, automatically return to submenu **YEAR**

Select Pub Year to Print:

At prompt select **PUB YEAR** from **MAINMENU**
Selection activates submenu **YEAR**
At prompt select **PUB YEAR TO PRINT**

Selection activates Dbase code:

```
USE PUBSORT ORDER PUBDATE
SET SAFETY OFF
CLEAR
DO YEAR
```

```
  ************************************************************
  ** Procedure: YEAR                                        **
  **                                                        **
  ** Define Procedure to enter pub year and locate PUB      **
  ** YEAR to print PUBYEAR report                           **
  **                                                        **
  ** This Procedure is part of FPDS written by Brian        **
  ** E. Tansey                                              **
  ************************************************************

Procedure year
 DEFINE WINDOW choose FROM 5,7 TO 9,57 DOUBLE COLOR
 N/W,,GR+/R
 ACTIVATE WINDOW choose
 MYEAR=SPACE(4)
 @ 1,3 SAY "Enter the 4 digit YEAR to print report: " GET
 MYEAR
 READ
 DEACTIVATE WINDOW choose
 CLEAR
 _peject="none"
 _plength=60
 REPORT FORM MONTHREP TO PRINT FOR
  MYEAR=STR(YEAR(PUBDATE),4,0)
clear
DO oncemore
RETURN

  ************************************************************
  ** Procedure: ONCEMORE                                    **
  **                                                        **
  ** Define Procedure to determine if end-user would        **
  ** like to print another PUBYEAR report                   **
  **                                                        **
  ** This Procedure is part of FPDS written by Brian        **
  ** E. Tansey                                              **
  ************************************************************


Procedure oncemore
 MYESNO=SPACE(1)
 DEFINE WINDOW again FROM 10,5 TO 16,76 DOUBLE COLOR
 N/W,,GR+/R
ACTIVATE WINDOW again
@ 2,1 SAY "Enter 'Y' To Print another YEAR or 'N' To
return to Main Menu" Get MYESNO
READ
DEACTIVATE WINDOW again
   IF MYESNO="Y"
    GO TOP
    DO year
```

```
            ELSE
             CLEAR
            RETURN
      ENDIF
```

Return to YEAR submenu

Select Year/Print Year and Pub Area:

At prompt select **PUB YEAR** from **MAINMENU**
Selection activates submenu **YEAR**
At prompt select **PUB YEAR/PRINT YEAR & PUB AREA**

Selection activates Dbase code:

```
USE PUBSORT
SET SAFETY OFF
INDEX ON (STR(YEAR(PUBDATE),4,0) + AREA) TO CUP
CLEAR
DO YEAR

      ************************************************************
      ** Procedure: YEAR                                        **
      **                                                        **
      ** Define Procedure to enter pub year and locate PUB     **
      ** YEAR and PUB AREA to print YEARAREA report             **
      **                                                        **
      ** This Procedure is part of FPDS written by Brian       **
      ** E. Tansey                                              **
      ************************************************************

Procedure year
 DEFINE WINDOW choose FROM 5,7 TO 9,57 DOUBLE COLOR N/W,,GR+/R
 ACTIVATE WINDOW choose
 MYEAR=SPACE(4)
 @ 1,3 SAY "Enter the 4 digit YEAR to print report: " GET
 MYEAR
 READ
 DEACTIVATE WINDOW choose
 CLEAR
 _peject="none"
 _plength=60
 REPORT FORM YEARAREA TO SCREEN FOR
 MYEAR=STR(YEAR(PUBDATE),4,0)
    clear
    DO oncemore
    RETURN
```

```
*************************************************************
** Procedure: ONCEMORE                                     **
**                                                         **
** Define Procedure to determine if end-user would         **
** like to print another YEARAREA report                   **
**                                                         **
** This Procedure is part of FPDS written by Brian         **
** E. Tansey                                               **
*************************************************************

Procedure oncemore
 MYESNO=SPACE(1)
 DEFINE WINDOW again FROM 10,5 TO 16,76 DOUBLE COLOR
 N/W,,GR+/R
 ACTIVATE WINDOW again
 @ 2,1 SAY "Enter 'Y' To Print another YEAR or 'N' To return
 to Main Menu" Get MYESNO
 READ
 DEACTIVATE WINDOW again

        IF MYESNO="Y"
         GO TOP
          DO year
            ELSE
             CLEAR
            RETURN
        ENDIF
```

Return to **YEAR** submenu

Select Year/Print Year and Pub Type:

At prompt select **PUB YEAR** from **MAINMENU**
Selection activates submenu **YEAR**
At prompt select **PUB YEAR/PRINT YEAR & PUB TYPE**

Selection activates Dbase code:

```
USE PUBSORT
SET SAFETY OFF
INDEX ON (STR(YEAR(PUBDATE),4,0) + TYPEOFPUB) TO CUP
CLEAR
DO YEAR
```

```
      ************************************************************
      ** Procedure: YEAR                                        **
      **                                                        **
      ** Define Procedure to enter pub year and locate PUB     **
      ** YEAR and PUB TYPE to print YEARTYPE report             **
      **                                                        **
      ** This Procedure is part of FPDS written by Brian       **
      ** E. Tansey                                              **
      ************************************************************

Procedure year
 DEFINE WINDOW choose FROM 5,7 TO 9,57 DOUBLE COLOR N/W,,GR+/R
 ACTIVATE WINDOW choose
 MYEAR=SPACE(4)
 @ 1,3 SAY "Enter the 4 digit YEAR to print report: " GET
 MYEAR
 READ
 DEACTIVATE WINDOW choose
 CLEAR
 _peject="none"
 _plength=60
 REPORT FORM YEARTYPE TO SCREEN FOR
 MYEAR=STR(YEAR(PUBDATE),4,0)
    clear
    DO oncemore
    RETURN

      ************************************************************
      ** Procedure: ONCEMORE                                    **
      **                                                        **
      ** Define Procedure to determine if end-user would       **
      ** like to print another YEARTYPE report                  **
      **                                                        **
      ** This Procedure is part of FPDS written by Brian       **
      ** E. Tansey                                              **
      ************************************************************

Procedure oncemore
 MYESNO=SPACE(1)
 DEFINE WINDOW again FROM 10,5 TO 16,76 DOUBLE COLOR
 N/W,,GR+/R
 ACTIVATE WINDOW again
 @ 2,1 SAY "Enter 'Y' To Print another YEAR or 'N' To return
 to Main Menu" Get MYESNO
 READ
 DEACTIVATE WINDOW again

        IF MYESNO="Y"
          GO TOP
            DO year
            ELSE
```

```
            CLEAR
            RETURN
         ENDIF
```

Return to YEAR submenu

Select Year/Print Year and Faculty Member:

  At prompt select **PUB YEAR** from **MAINMENU**
  Selection activates submenu **YEAR**
  At prompt select **PUB YEAR/PRINT YEAR & FACULTY MEMBER**

  Selection activates Dbase code:

```
USE PUBSORT
SET SAFETY OFF
INDEX ON (STR(YEAR(PUBDATE),4,0) + LASTNAME) TO CUP
CLEAR
DO YEAR

      ************************************************************
      ** Procedure: YEAR                                        **
      **                                                        **
      ** Define Procedure to enter pub year and locate PUB     **
      ** YEAR and FACULTY MEMBER to print YEARMEM report        **
      **                                                        **
      ** This Procedure is part of FPDS written by Brian       **
      ** E. Tansey                                              **
      ************************************************************

Procedure year
 DEFINE WINDOW choose FROM 5,7 TO 9,57 DOUBLE COLOR N/W,,GR+/R
 ACTIVATE WINDOW choose
 MYEAR=SPACE(4)
 @ 1,3 SAY "Enter the 4 digit YEAR to print report: " GET
 MYEAR
 READ
 DEACTIVATE WINDOW choose
 CLEAR
 _peject="none"
 _plength=60
 REPORT FORM YEARMEM TO SCREEN FOR
 MYEAR=STR(YEAR(PUBDATE),4,0)
    clear
    DO oncemore
    RETURN
```

```
      ************************************************************
      ** Procedure: ONCEMORE                                    **
      **                                                        **
      ** Define Procedure to determine if end-user would       **
      ** like to print another YEARTYPE report                  **
      **                                                        **
      ** This Procedure is part of FPDS written by Brian       **
      ** E. Tansey                                              **
      ************************************************************

Procedure oncemore
 MYESNO=SPACE(1)
 DEFINE WINDOW again FROM 10,5 TO 16,76 DOUBLE COLOR
 N/W,,GR+/R
 ACTIVATE WINDOW again
 @ 2,1 SAY "Enter 'Y' To Print another YEAR or 'N' To return
 to Main Menu" Get MYESNO
 READ
 DEACTIVATE WINDOW again

        IF MYESNO="Y"
           GO TOP
           DO year
            ELSE
             CLEAR
            RETURN
        ENDIF
```

Return to YEAR submenu

Select Year/Print Pub Type by Month:

At prompt select **PUB YEAR** from **MAINMENU**
Selection activates submenu **YEAR**
At prompt select **PUB YEAR/PRINT TYPE BY MONTH**

Selection activates Dbase code:

```
USE PUBSORT
SET SAFETY OFF
INDEX ON STR(YEAR(PUBDATE),4,0) + CMONTH(PUBDATE) TO MONTH
CLEAR
DO YEAR
```

```
      ************************************************************
      ** Procedure: YEAR                                        **
      **                                                        **
      ** Define Procedure to enter pub year and locate PUB     **
      ** YEAR and PUB MONTH to print YEARMNTH report            **
      **                                                        **
      ** This Procedure is part of FPDS written by Brian       **
      ** E. Tansey                                              **
      ************************************************************

Procedure year
 DEFINE WINDOW choose FROM 5,7 TO 9,58 DOUBLE COLOR N/W,,GR+/R
 ACTIVATE WINDOW choose
 MYEAR=SPACE(4)
 @ 1,3 SAY "Enter the 4 digit YEAR to print report: " GET
 MYEAR
 READ
 DEACTIVATE WINDOW choose
 CLEAR
 _peject="none"
 _plength=60
 REPORT FORM YEARMNTH TO SCREEN FOR
 STR(YEAR(PUBDATE),4,0)=MYEAR
    clear
    DO oncemore
    RETURN

      ************************************************************
      ** Procedure: ONCEMORE                                    **
      **                                                        **
      ** Define Procedure to determine if end-user would       **
      ** like to print another YEARMNTH report                  **
      **                                                        **
      ** This Procedure is part of FPDS written by Brian       **
      ** E. Tansey                                              **
      ************************************************************

Procedure oncemore
 MYESNO=SPACE(1)
 DEFINE WINDOW again FROM 10,5 TO 16,76 DOUBLE COLOR
 N/W,,GR+/R
 ACTIVATE WINDOW again
 @ 2,1 SAY "Enter 'Y' To Print another YEAR or 'N' To return
 to Main Menu" Get MYESNO
 READ
 DEACTIVATE WINDOW again
 IF MYESNO="Y"
           GO TOP
           DO year
            ELSE
             CLEAR
```

```
            RETURN
        ENDIF
```

Return to **YEAR** submenu

Reindex Faculty Dbase:

At prompt select **TOOLS** from **MAINMENU**
Selection activates submenu **TOOL**
At prompt select **REINDEX FACULTY DBASE**
Activation of selection automatically Reindexes Faculty Dbase
Completion Dbase reindex, automatically return to **TOOL** submenu

Copy Application to A Drive:

At prompt select **TOOLS** from **MAINMENU**
Selection activates submenu **TOOL**
At prompt select **COPY APPLICATION TO A DRIVE**
Activation of selection automatically copies Faculty Dbase to Drive A
Completion Application copy, automatically return to **TOOL** submenu

Return To Dbase IV Control Center:

At prompt select **EXIT** from **MAINMENU**
Selection activates submenu **EXIT**
At prompt select **RETURN TO DBASE IV CONTROL CENTER**
Activation of selection automatically returns end-user to Dbase Control Center

Return to DOS:

At prompt select **EXIT** from **MAINMENU**
Selection activates submenu **EXIT**
At prompt select **RETURN TO DOS**
Activation of selection automatically returns end-user to DOS

B. FPDS MATERIALIZATION

1. Publication Report by Faculty Member Lastname and Type of Publication

July 15, 1992

Administrative Sciences Department Publication Report By Faculty Member Lastname and Type of Publication

Liao

Book

S.P., Liao, "The Naval Postgraduate School is Located in Monterey, California", UNITED STATES NAVY, Volume III, June, 1992. (pp. 1-201).

Conference Article

S.P., Liao, "All Naval Postgraduate School students are required to complete a thesis", Department Of Defense, Volume II, March, 1990. (pp. 23-31).

10

FPDS MATERIALIZATION continued

2. **Publication Report By Publication Area and Publication Type**

July 15, 1992

Administrative Sciences Department Publication Report By Area and Type of Publication

Financial Management

Book

S.P., Liao, "The Naval Postgraduate School is Located in Monterey, California", UNITED STATES NAVY, Volume III, June, 1992. (pp. 1-201).

Conference Article

S.P., Liao, "All Naval Postgraduate School students are required to complete a thesis", Department Of Defense, Volume II, March, 1990. (pp. 23-31).

10

FPDS MATERIALIZATION continued

3. **Publication Report By Publication Type and Publication Area**

July 15, 1992

Administrative Sciences Department Publication Report By Type and Area of Publication

Book

Policy Analysis

S.P., Liao, "The Naval Postgraduate School is Located in Monterey, California", UNITED STATES NAVY, Volume III, June, 1992. (pp. 1-201).

Financial Management

S.P., Liao, "All Naval Postgraduate School students are required to complete a thesis", Department Of Defense, Volume II, March, 1990. (pp. 23-31).

10

FPDS MATERIALIZATION continued

4. Publication Report By Publication Year

July 15, 1992

Administrative Sciences Department Publication Report By Year of Publication

1992

S.P., Liao, "The Naval Postgraduate School is Located in Monterey, California", UNITED STATES NAVY, Volume III, June, 1992. (pp. 1-201).

1990

S.P., Liao, "All Naval Postgraduate School students are required to complete a thesis", Department Of Defense, Volume II, March, 1990. (pp. 23-31).

10

FPDS MATERIALIZATION continued

5. **Publication Report By Publication Year and Faculty Member**

July 15, 1992

Administrative Sciences Department Publication Report By Year of Publication and Faculty Member

1992

Liao

S.P., Liao, "The Naval Postgraduate School is Located in Monterey, California", UNITED STATES NAVY, Volume III, June, 1992. (pp. 1-201).

Bui

T.X., Bui, "All Naval Postgraduate School students are required to complete a thesis", Department Of Defense, Volume II, March, 1992. (pp. 23-31).

10

FPDS MATERIALIZATION continued

6. **Publication Report By Publication Year and Area of Publication**

July 15, 1992

Administrative Sciences Department Publication Report By Year of Publication and Area of Publication

1992

Policy Analysis

S.P., Liao, "The Naval Postgraduate School is Located in Monterey, California", UNITED STATES NAVY, Volume III, June, 1992. (pp. 1-201).

Financial Management

T.X., Bui, "All Naval Postgraduate School students are required to complete a thesis", Department Of Defense, Volume II, March, 1992. (pp. 23-31).

10

FPDS MATERIALIZATION continued

7. **Publication Report By Publication Year and Type of Publication**

July 15, 1992

Administrative Sciences Department Publication Report By Year of Publication and Type of Publication

1992

Book Review

S.P., Liao, "The Naval Postgraduate School is Located in Monterey, California", UNITED STATES NAVY, Volume III, June, 1992. (pp. 1-201).

Journal Article

T.X., Bui, "All Naval Postgraduate School students are required to complete a thesis", Department Of Defense, Volume II, March, 1992. (pp. 23-31).

10

FPDS MATERIALIZATION continued

8. **Publication Report By Publication Year and Month of Publication**

July 15, 1992

Administrative Sciences Department Publication Report By Year of Publication and Month of Publication

1992

June

S.P., Liao, "The Naval Postgraduate School is Located in Monterey, California", UNITED STATES NAVY, Volume III, June, 1992. (pp. 1-201).

March

T.X., Bui, "All Naval Postgraduate School students are required to complete a thesis", Department Of Defense, Volume II, March, 1992. (pp. 23-31).

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APPENDIX J

A. GETTING STARTED WITH FPDS

The Administrative Sciences Department assigns the task of maintaining the FPDS application to the Research Technician. Therefore, the software was loaded on the hard drive of the Research Technician's computer. FPDS can be started by two different methods from this configuration: (1) type "DO FPDS" when in Dbase IV's dot prompt, or (2) while in Dbase IV's control center highlight FPDS, press <Enter> and then select "RUN APPLICATION".

B. OPERATION

Once the FPDS application has been started, the "Sign on Banner" will appear. This screen should be identical to that shown in Figure 1. If there is a discrepancy, verify that FPDS, version 1.0 is the current application being executed.

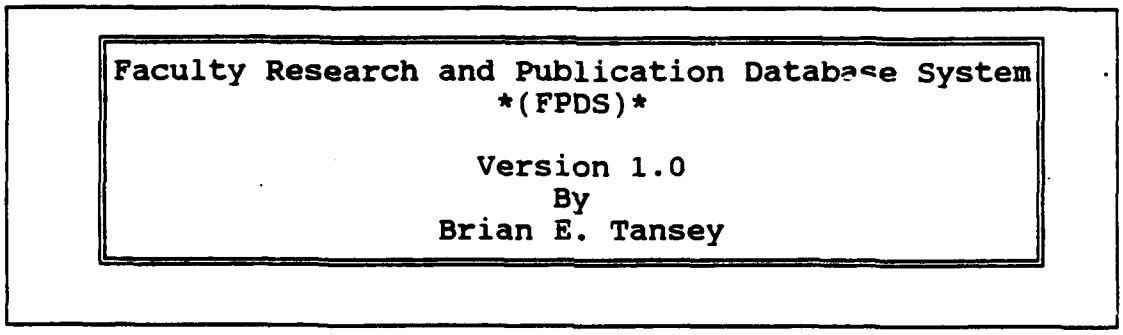

Figure 1 FPDS Sign On Banner

To continue with the application, press the <Enter> key.

C. MAIN MENU

The next screen to appear will be the main menu, shown in Figure 2. To access the desired option, press the left

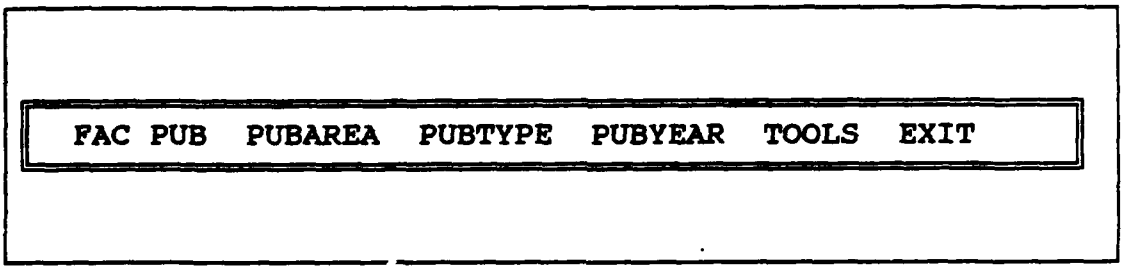

Figure 2 FPDS Main Menu

or right arrow keys to highlight desired module, press <Enter>. The associated pop-up menu will appear.

D. FAC PUB MODULE

The FACULTY MEMBER module is used for the management and tracking of all Administrative Sciences Faculty members' publications. It provides a method to add a faculty publication record, modify a faculty publication record, find a faculty publication, mark a faculty publication record for deletion, delete the marked record and print the faculty publication report.

1. Add New Faculty Publication

To add a new faculty Publication record, select "ADD NEW FACULTY Publication" from the FAC PUB pop-up menu (see Figure 3). To execute this option, highlight this choice and press the <Enter> key. This will clear the current screen

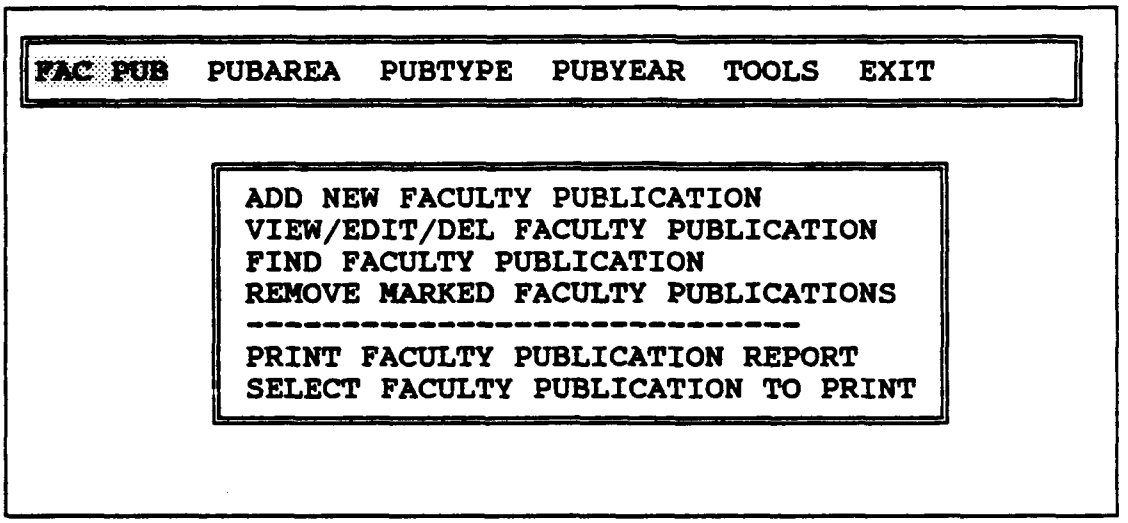

Figure 3 FAC PUB Pop-up Menu

and a formatted data entry form (Figure 4/next page) will appear. The screen should display an empty record with the cursor in the "Lastname" field. At this point, fill in the appropriate information that is applicable to the current record entry. Once an entry has been recorded in a field, press the <Tab> or <Enter> keys to move to the next field. Press <PgDn> to obtain a clear data entry screen to enter another record. Otherwise, simultaneously press the <Ctrl><End> keys to save the record and return to the Main Menu. Pressing the <Esc> key will abandon the "Enter New Record Process" and will automatically return to the Main Menu without saving it.

2. View/Edit/Del Faculty Publication

To view, edit or mark a faculty member record for deletion, select this option from the Faculty Member pop-up

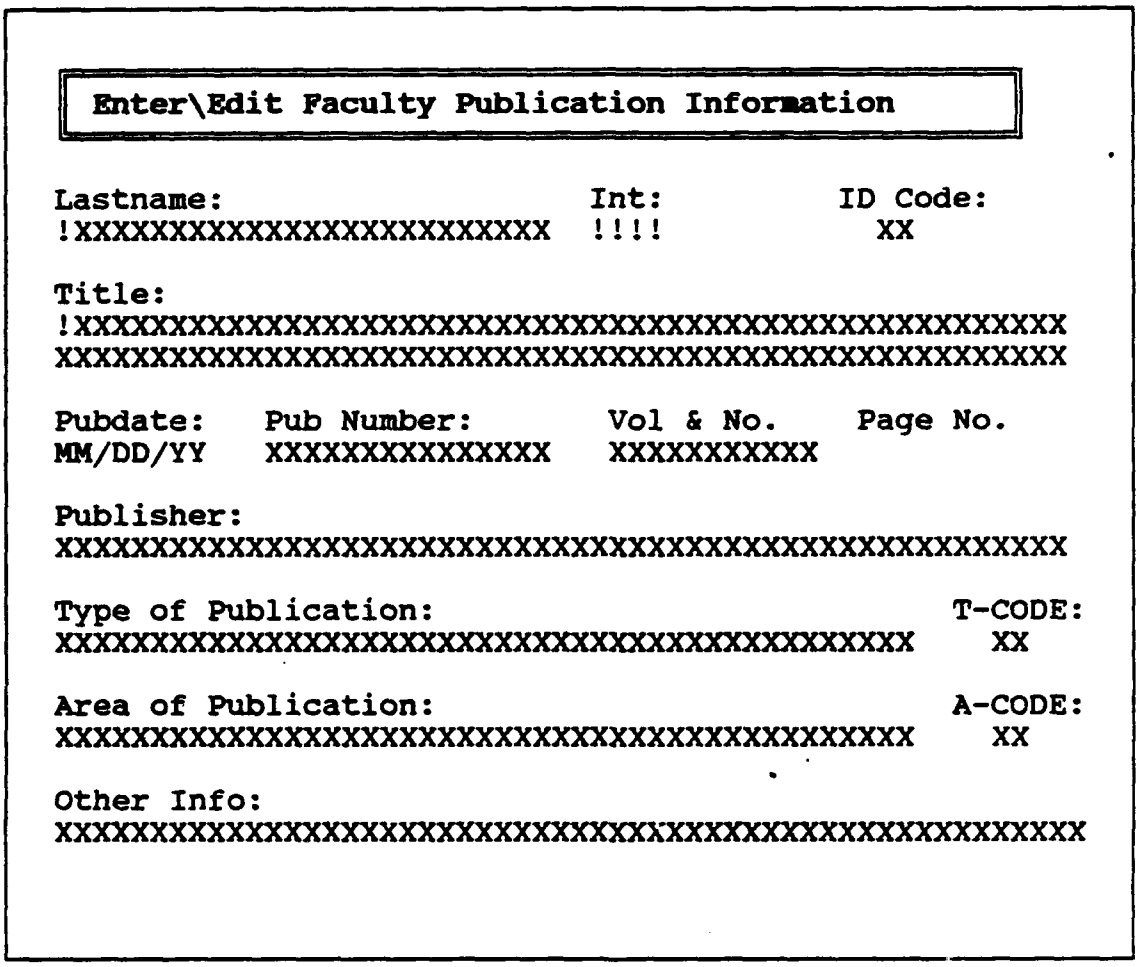

Figure 4 Faculty Publication Add/Edit Data Entry Form

menu. Once selected, a browse screen will appear. The arrow keys or <PgDn> <PgUp> keys can be used to scroll through the entire FPDS database and modify records accordingly.

To mark a record for deletion, select the record to delete, then press either the <Ctrl><U> or <Del> keys. Verify the record has been marked for deletion by looking at the bottom right hand corner of the screen for the word "Del". Marking does not interfere with further viewing or editing operations. Pressing <Ctrl><End> saves the deletion mark as

well as any additional editing changes. To unmark a record that has been marked for deletion, return to the marked record and press <Ctrl><U> or <Del> again to unmark the record. A marked record is not actually deleted until the "REMOVE MARKED FACULTY MEMBERS" option has been selected from the Faculty Member pop-up menu.

3. **Remove Marked Faculty Publications**

This selection performs the final record deletion. After this option has been selected, the marked record(s) will be permanently removed from the database. When exercising this option, extreme caution should be taken. It is recommended that a backup of the database be created.

After a record deletion has been executed, the screen will display various file specifications, purge the database of marked records and automatically re-sort and reindex the database. Once this process is complete the system will return to the Main Menu.

4. **Find Faculty Publication**

When selected, the screen in Figure 5 will appear. This screen asks the user to input the faculty member's ID_CODE to find the record to be viewed or edited. If a valid ID_CODE number is entered, the system will go directly to that record and display its data in the Enter/Edit screen shown previously in Figure 4. If the ID_CODE is not valid, a message (see Figure 6) will be displayed asking to verify

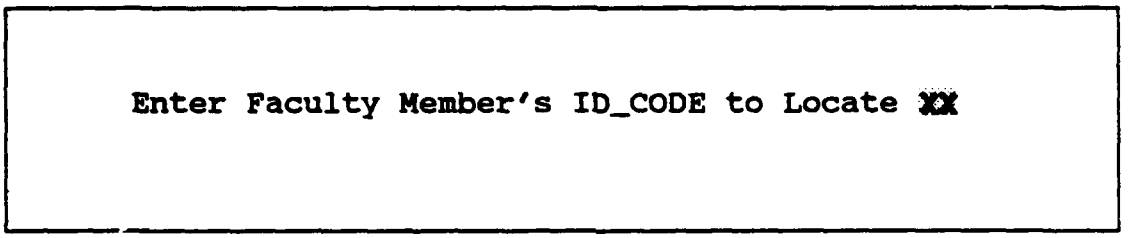

Figure 5 Faculty Member ID_CODE Input Screen

the ID_CODE entered and to "Press any key to continue". When a key is pressed the input screen displayed in Figure 5 will be shown again. After a valid ID_CODE has been entered, the requested record is displayed and the desired fields can be edited. Editing can be canceled, with no changes to the original record, by pressing <Esc> before advancing to the next record. To save changes press <Ctrl><End>. The option to find another faculty member record or return to the main menu is made available. Additionally, a record can be deleted while in this mode. The same procedures discussed for marking a record for deletion should be followed.

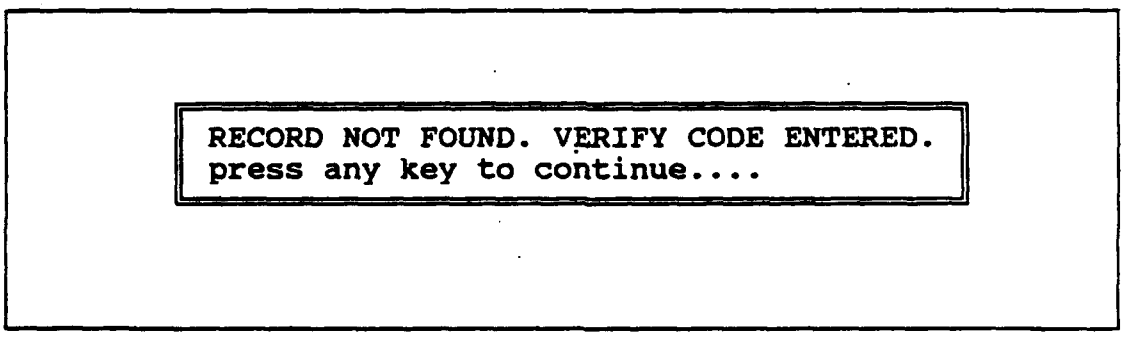

Figure 6 ID_CODE Record Not Found Message

5. **Print Faculty Publication Report**

When highlighted press <enter> and the pop-up menu in Figure 7 will be displayed. This directs the output to the

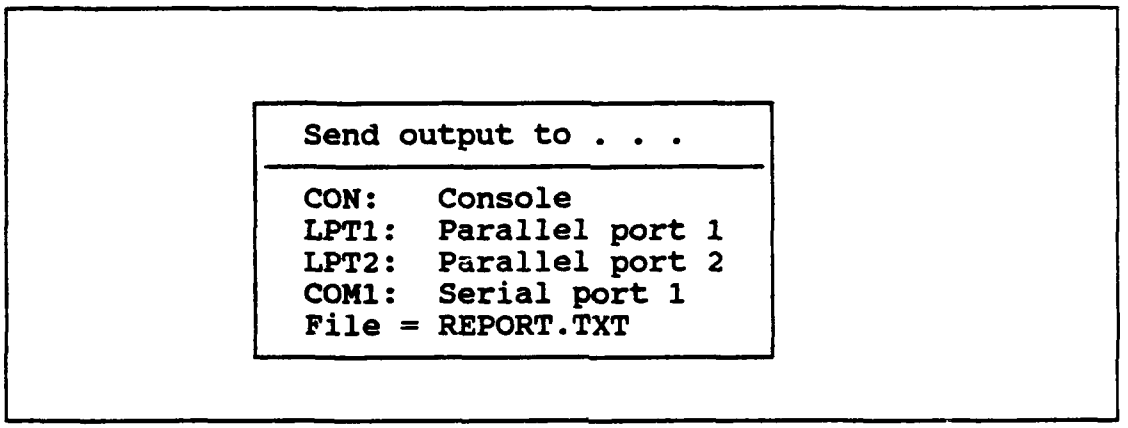

Figure 7 Report Destination Menu

screen console, printer (LPT1 or LPT2) or designated file. The "Publication Report by Faculty Member Lastname and Type of Publication" (Appendix I, section B, number 1) will be generated by this selection. The entire FPDS database will be printed, indexing on faculty member lastname.

6. **Select Faculty Member To Print**

This menu item allows the user to print the "Publication Report by Faculty Member Lastname and Type of Publication" for a pre-determined faculty member. Select this option if a printout of the entire FPDS database is not required. When this selection is highlighted, press <Enter>, the input screen displayed in Figure 8 will appear. Enter a valid faculty member's lastname. If a valid lastname is entered, the publication report will automatically be

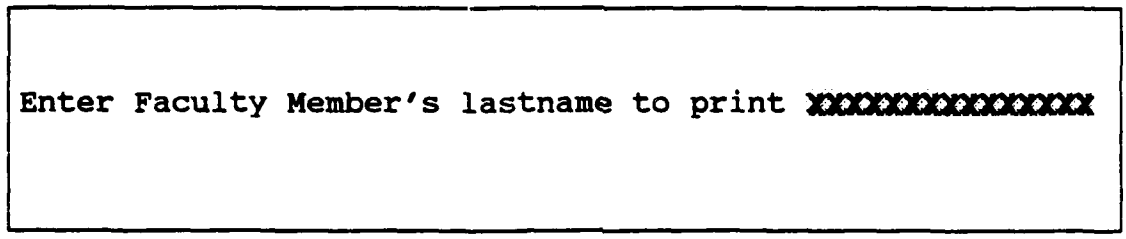

Figure 8 Faculty Member Lastname Input Screen

generated. If a valid lastname is not entered, the same message displayed in Figure 6 will be shown, indicating that an error has occurred. When any key is pressed the screen in Figure 8 will appear. When a report has been successfully generated, the option to enter another faculty member or return to the Main Menu will displayed.

E. PUB AREA MODULE

Choose this selection to generate reports by "Publication Area". When the Main Menu is displayed, move the arrows to highlight the PUB AREA menu option, press <Enter>. This will activate the pop-up menu illustrated in Figure 9.

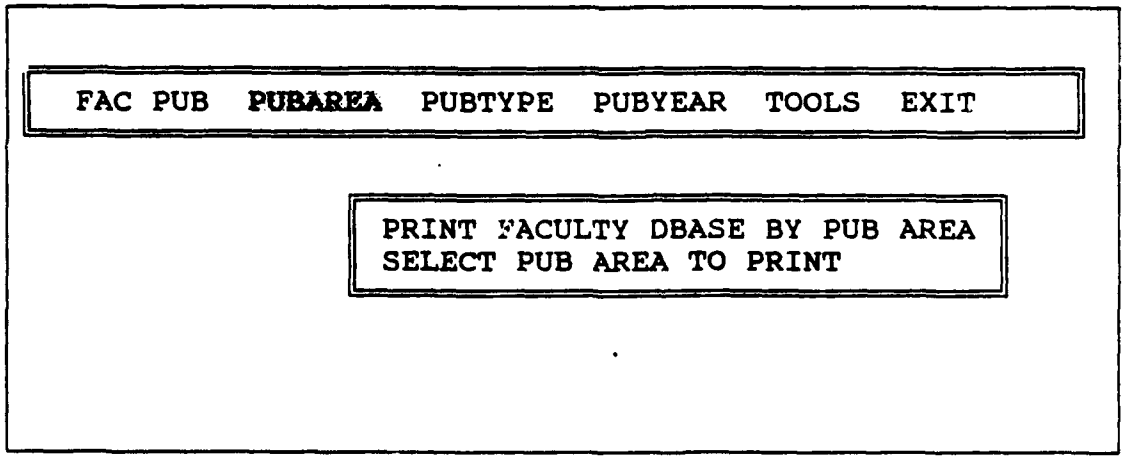

Figure 9 PUBAREA Pop-Up Menu

1. Print Faculty Dbase By Pub Area

When selected, the Report Destination Menu displayed in Figure 7 will be shown on the screen. Once the desired output destination has been designated, the report "Publication Report by Publication Area and Publication Type" (Appendix I, section B, number 2) will be generated. This menu selection will print the entire FPDS database, indexing on Publication Area.

2. Select Pub Area To Print

Select this option to print a specific "Publication Area". When highlighted, press <enter>, the menu illustrated in Figure 10 will be displayed. Input exactly the two letter code displayed on the menu that corresponds to the desired "Publication Area" to print. If a valid code is not entered or there are no publication areas in the database for the

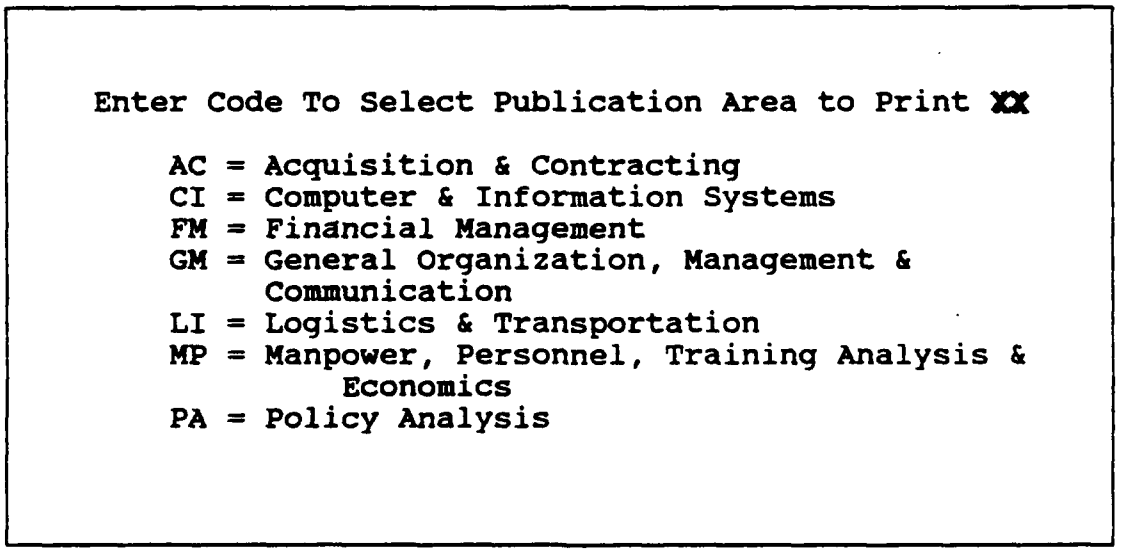

Figure 10 Publication Area Selection Menu

selected choice, the message displayed in Figure 6 will appear. When any key is pressed, the menu in Figure 10 will be displayed. After a report has been successfully generated the option to print another report or return to the Main Menu will be displayed.

F. PUB TYPE MODULE

To generate reports by "Publication Type", select this option. When the Main Menu is displayed, select PUB TYPE menu option, press <Enter>. This will activate the pop-up menu illustrated in Figure 11.

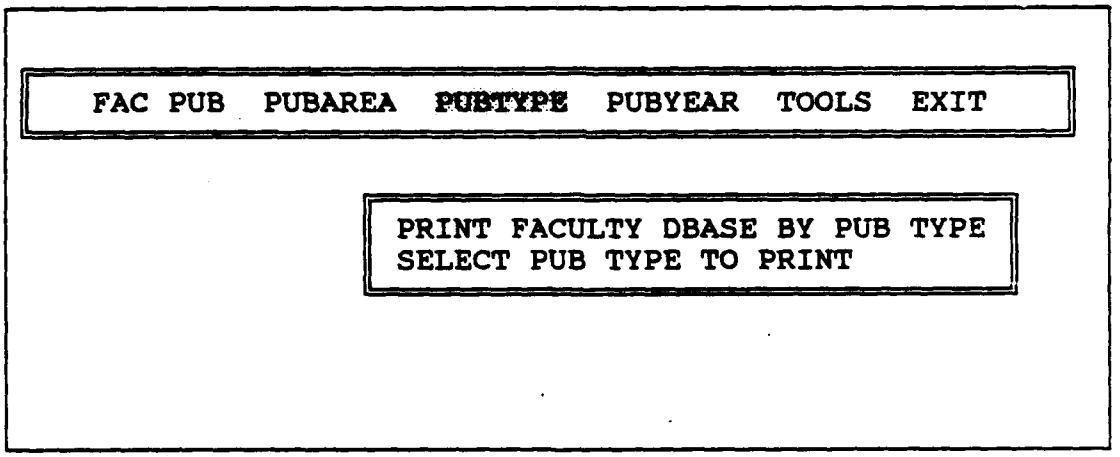

Figure 11 PUBTYPE Pop-Up Menu

1. Print Faculty Dbase By Pub Type

When selected, the Report Destination Menu displayed in Figure 7 will appear on the screen. When the report destination has been designated, the "Publication Report by Publication Type and Publication Area" (Appendix I,

section B, number 3) will be generated. This menu selection will print the entire FPDS database, indexing on Publication Type.

2. **Select Pub Type To Print**

When reports are required to be generated by a specific "Publication Type", select this menu item. When highlighted, press <enter> and the menu illustrated in Figure 12 will be displayed. Input exactly the two letter code displayed on the menu that corresponds to the desired "Publication Type" to print. If a valid code is not entered or there are no publication types in the database for the

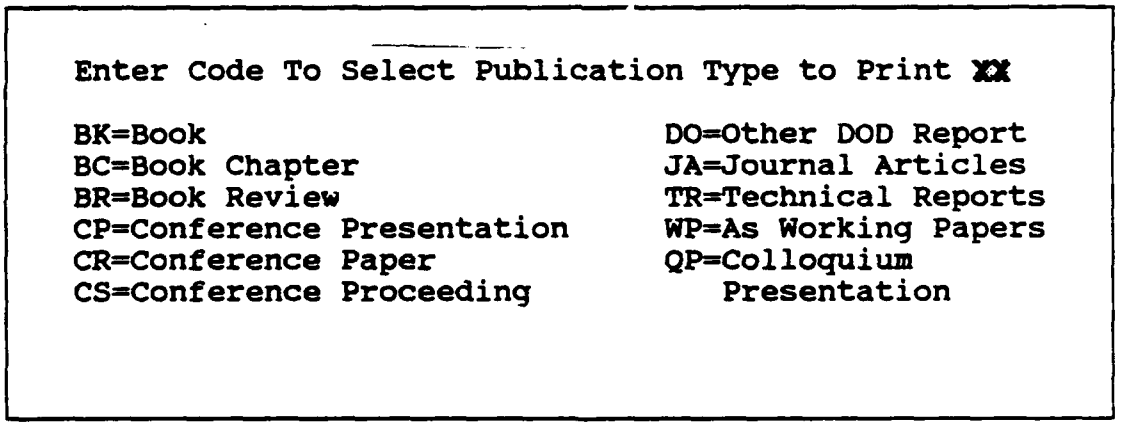

Figure 12 Publication Type Selection Menu

selected choice, the message displayed in Figure 6 will appear. When any key is pressed the menu in Figure 12 will be displayed. When a report has been successfully generated the option to print another report or return to the Main Menu will be displayed.

G. PUB YEAR MODULE

When reports are required to be generated by "Publication Year", select this option. When the Main Menu is displayed, highlight the PUB YEAR menu option, press <Enter>. This will activate the pop-up menu illustrated in Figure 13.

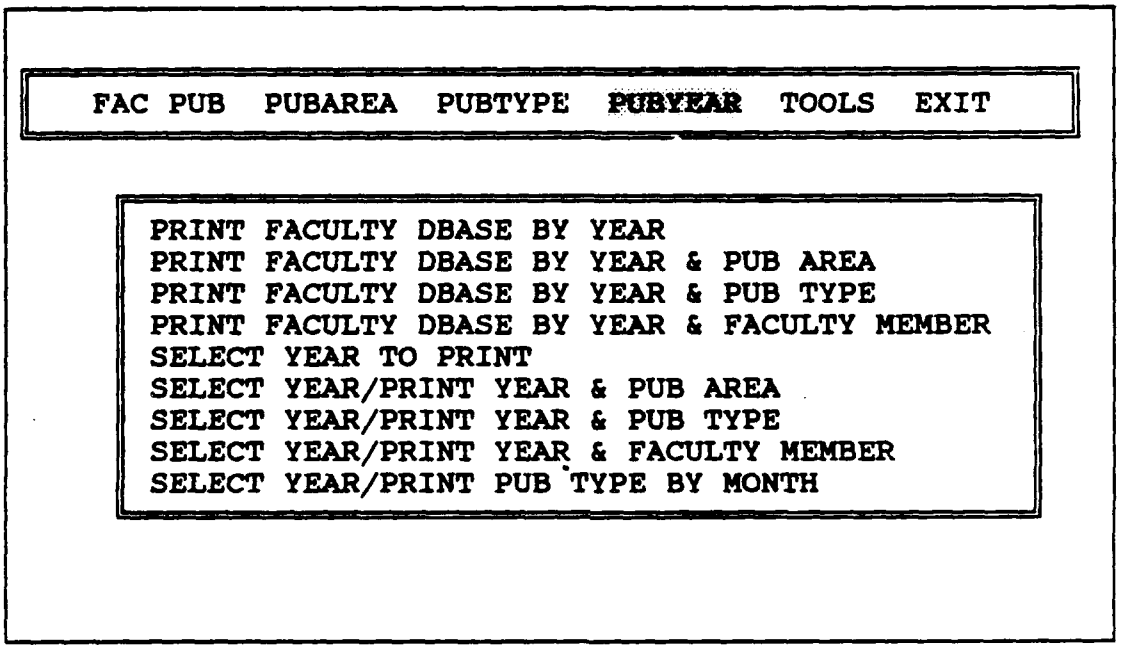

Figure 13 PUBYEAR Pop-Up Menu

1. Print Faculty Dbase By Year

When selected, the Report Destination Menu displayed in Figure 7 will appear. Upon selecting the report destination, the "Publication Report By Publication Year" (Appendix I, section B, number 4) will be generated. This menu selection will print the entire FPDS database, indexing on Publication Year.

2. Print Faculty Dbase By Year & Pub Area

When selected, the Report Destination Menu displayed in Figure 7 will appear. Upon selecting the report destination, the "Publication Report By Publication Year and Area of Publication" (Appendix I, section B, number 6) will be generated. This menu selection will print the entire FPDS database, indexing on Publication Year and Publication Area.

3. Print Faculty Dbase By Year & Pub Type

When selected, the Report Destination Menu displayed in Figure 7 will appear. Upon selecting the report destination, the "Publication Report By Publication Year and Type of Publication" (Appendix I, section B, number 7) will be generated. This menu selection will print the entire FPDS database, indexing on Publication Year and Publication Type.

4. Print Faculty Dbase By Year & Faculty Member

When selected, the Report Destination Menu displayed in Figure 7 will appear. Upon selecting the report destination, the "Publication Report By Publication Year and Faculty Member" (Appendix I, section B, number 5) will be generated. This menu selection will print the entire FPDS database, indexing on Publication Year and Lastname.

5. Select Year To Print

To print a specific "Publication Year", select this option. When highlighted, press <enter>, and the menu illustrated in Figure 14 will be displayed. Input a valid

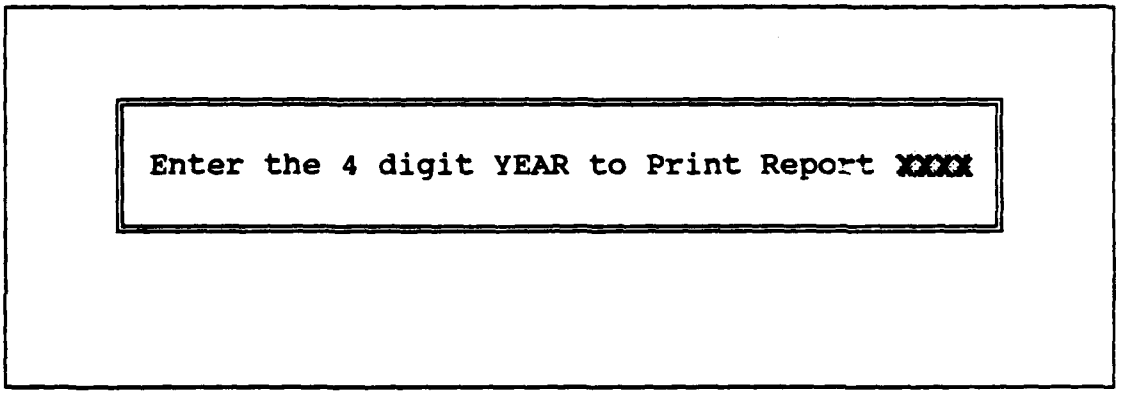

Figure 14 Publication Year Input Screen

four digit Publication Year (i.e., 1991) to be printed. If a valid date is not entered or there is not a "Publication Year" in the database for the entered year, the message displayed in Figure 6 will appear. When any key is pressed the menu in Figure 14 will be displayed. When a report has been successfully generated the option to print another report or return to the Main Menu will be displayed.

6. Select Year/Print Year & Pub Area

To print a specific "Publication Year" and break down the faculty member's publications by "Publication Area", highlight this option, press <enter>. The menu illustrated in Figure 14 will be displayed. Once a valid four digit Publication Year has been entered the "Publication Report By Publication Year and Area of Publication" report will be generated. If a valid date is not entered or there is not a "Publication Year" in the database for the entered year, the message displayed in Figure 6 will appear. When any key is

pressed the menu in Figure 14 will be displayed. When a report has been successfully generated the option to print another report or return to the Main Menu will be displayed.

7. **Select Year/Print Year & Pub Type**

To print a specific "Publication Year" and break down the faculty member's publications by "Publication Type", highlight this option, press <enter>. The menu illustrated in Figure 14 will be displayed. Once a valid four digit Publication Year has been entered the "Publication Report By Publication Year and Type of Publication" report will be generated. If a valid date is not entered or there is not a "Publication Year" in the database for the entered year, the message displayed in Figure 6 will appear. When any key is pressed the menu in Figure 14 will be displayed. When a report has been successfully generated the option to print another report or return to the Main Menu will be displayed.

8. **Select Year/Print Year & Faculty Member**

To print a specific "Publication Year" and break down the faculty member's publications by "Faculty Member", highlight this option, press <enter>. The menu illustrated in Figure 14 will be displayed. Once a valid four digit Publication Year has been entered the "Publication Report By Publication Year and Faculty Member" report will be generated. If a valid date is not entered or there is not a "Publication Year" in the database for the entered year, the message

displayed in Figure 6 will appear. When any key is pressed the menu in Figure 14 will be displayed. When a report has been successfully generated the option to print another report or return to the Main Menu will be displayed.

9. **Select Year/Print Pub Type By Month**

To print a specific "Publication Year" and break down the faculty member's publications by "Month", highlight this option, press <enter>. The menu illustrated in Figure 14 will be displayed. Once a valid four digit Publication Year has been entered the "Publication Report By Publication Year and Month of Publication" (Appendix I, section B, number 8) report will be generated. If a valid date is not entered or there is not a "Publication Year" in the database for the entered year, then the message displayed in Figure 6 will appear. When any key is pressed the menu in Figure 14 will be displayed. When a report has been successfully generated the option to print another report or return to the Main Menu will be displayed.

H. TOOLS MODULE

This option is chosen when special functions corressponding to the FPDS application need to be performed. When the Main Menu is displayed, highlight the TOOLS menu option, press <Enter>. This will activate the pop-up menu illustrated in Figure 15.

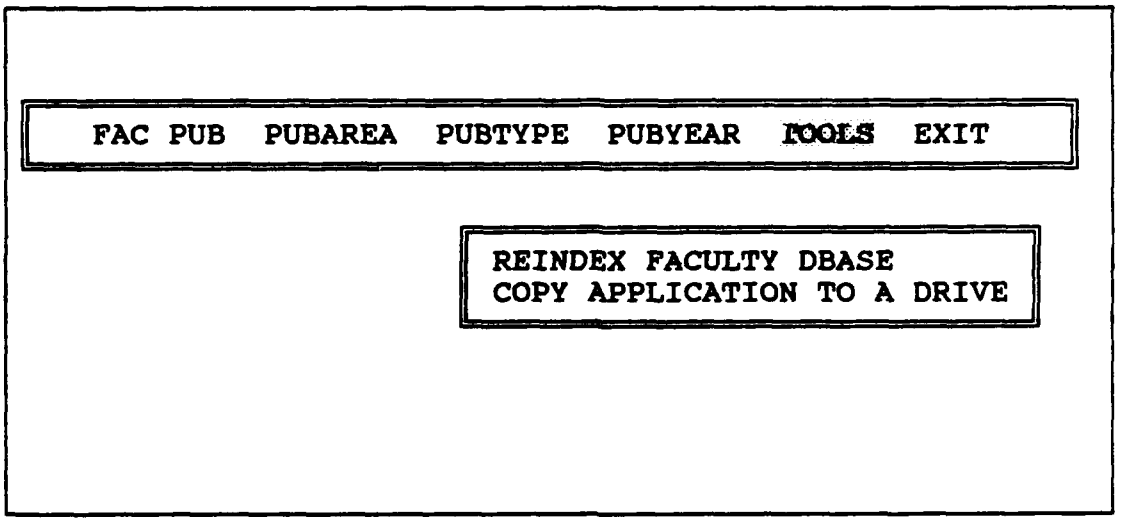

Figure 15 TOOLS Pop-Up Menu

1. Reindex Faculty Dbase

If the FPDS database requires to be reindexed, highlight this opotion, press <Enter>. Depending on the size of the database and number of items indexed this procedure could take some time. If this option is selected, a screen will appear indicating every index in the database that is being reindexed.

2. Copy Application to A Drive

To copy the FPDS application to a separate disk, highlight this option. Press <Enter> and the FPDS application will automatically be copied to Drive A.

I. EXIT MODULE

To leave the FPDS application, highlight the EXIT menu. The menu illustrated in Figure 16 will appear. The user has

the option to return to the Dbase IV control center or exit to DOS.

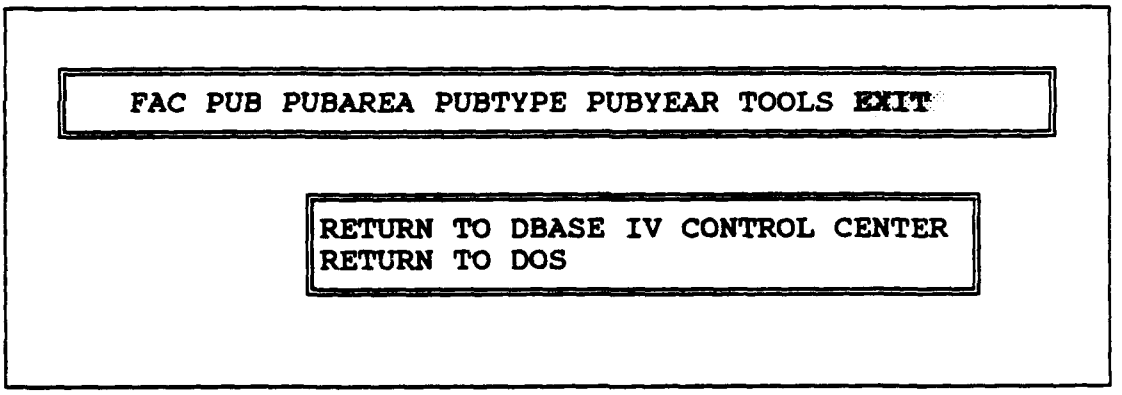

Figure 16 EXIT Pop-Up Menu

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